ORDER NO. VRD8810M608

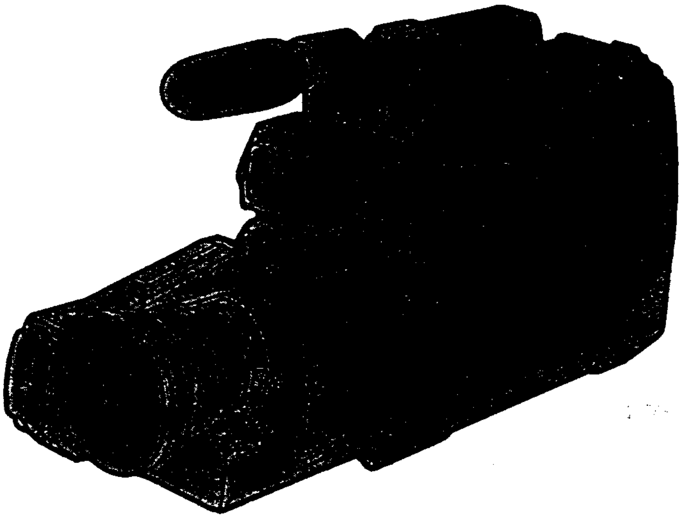
Service Manual

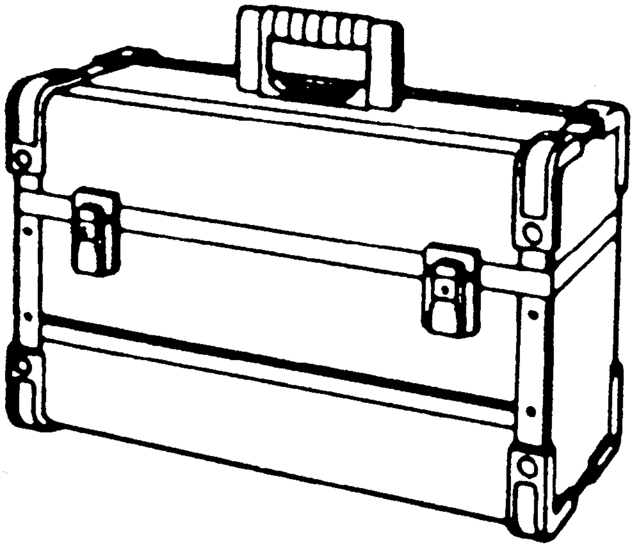
General Description
Adjustment Procedures
Block/Schematic Diagrams
Exploded Views/Parts List

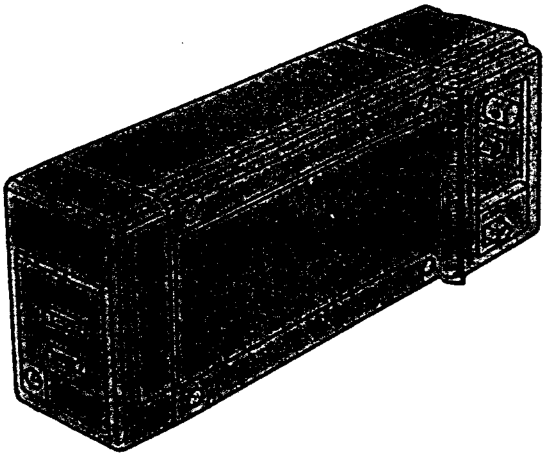
Panasonic S-VHS 625 VHS PAL

S-VHS Movie

AG-450 B/E EG/A EA/BA







Panasonic

Matsushita Electric Industrial Co., Ltd.
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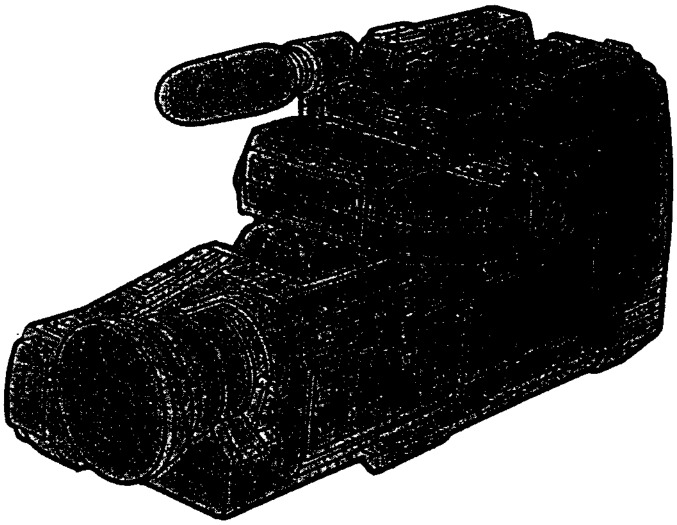
INTRODUCTION

This service manual contains technical information witch will allow service personnels to understand and service this model.
Section 1 presents you with some general information of features and controls, enabling you to become familiar with each function.
Section 2 contributes to your mechanical and electrical adjustment as well disassembly and replacement procedures.
In the case of very common information relating to other models like mechanical adjustments, please refer to each service manual.
Section 3 contains block diagrams which offers you information for checking and understanding each circuit. Schematic diagrams wich give you detailed information such as waveforms, voltage data, function e.t.c...
Section 4 contains exploded views and parts list.
Please place orders using the parts list and not the drawing reference numbers.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

S-VHS MOVIE



SPECIFICATIONS

ITEM	SPECIFICATION
POWER	Source: BATTERY; DC 12 V Consumption; Recording mode; 9 W (Battery operation)
RECORDING SYSTEM	4 rotary heads, helical scanning system PAL
TAPE FORMAT	S-VHS, VHS Cassette Tape (Tape width 12.7 mm)
TAPE SPEED	23.39 mm/s Record/Playback Time 240 min. (with NV-E240) FF/REW Time less than 12 min. (with NV-E180)
CAMERA	PICK-UP ELEMENT: CCD (Charge Coupled Device)
	STANDARD ILLUMINATION: 1,400 lux
	MINIMUM REQUIRED ILLUMINATION: 7 lux
	LENS: Built-in 10: 1 Power Zoom Lens with MACRO Function, Auto Iris, Auto Focus System, F1.4 (8~80 mm), Lens Front Diameter 55 mm
	VIEW FINDER: 2/3" B/W Electric View Finder
	WHITE BALANCE: Auto White Balance/Indoor/Outdoor

ITEM	SPECIFICATION
VIDEO	HEADS: 4 rotary heads (width: 70µm × 4) 1 flying (rotary) erase head
	OUTPUT: Adaptor (Multi); 1.0 Vp-p 75Ω unbalanced
AUDIO	HEAD: 1 Stationary head (Normal Audio)
	INPUT: MIC IN; −70 dBV, 4.7 kΩ unbalanced
	OUTPUT: Adaptor (Multi); −8 dBV, 600Ω unbalanced
WEIGHT	Approx. 2.7 kg (without Battery Pack)
DIMENSIONS	127 mm (W) × 223 mm (H) × 16-7/16" (417 mm) (D) with view finder turned down
STANDARD ACCESSORIES	1 pc. Battery Pack 1 pc. Battery Pack Charging Connector 1 pc. DIN-DIN Coaxial Cable 1 pc. AC Adaptor 1 pc. Shoulder Strap 1 pc. Batteries for Clock 1 pc. AV Converter Connector 1 pc. S-Video Cord 1 pc. Lens Cleaning Cloth 1 pc. Earphone 1 pc. System Carrying Case

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

CONTENTS

SECTION 1 GENERAL DESCRIPTION

1. HOW TO USE S-VHS MOVIE 1-1
   - 1-1. FEATURES 1-1
   - 1-2. CONTROLS AND COMPONENTS 1-1
   - 1-3. ELECTRICAL VIEWFINDER 1-3
   - 1-4. S-VHS MOVIE SYSTEM ACCESSORIES 1-3
   - 1-5. SETTING OF THE DATE AND CLOCK & RECORDING THE DATE/CLOCK INDICATIONS 1-4

REGULAR MAINTENANCE 1-5

SECTION 2 ADJUSTMENT PROCEDURES

- 2-1. DISASSEMBLY PROCEDURES 2-1
  - 2-1-1. DISASSEMBLY FLOW CHART 2-1
  - 2-1-2. DETAILED DISASSEMBLY METHOD 2-1
- 2-2. REPLACEMENT PROCEDURES 2-6
  - 2-2-1. REPLACEMENT OF CCD UNIT 2-6
  - 2-2-2. REPLACEMENT OF ZOOM MOTOR UNIT 2-6
  - 2-2-3. REPLACEMENT OF FOCUS MOTOR UNIT 2-6
  - 2-2-4. REPLACEMENT OF DD CYLINDER UNIT 2-6
  - 2-2-5. REPLACEMENT OF CAPSTAN STATOR UNIT 2-7
  - 2-2-6. REPLACEMENT OF TENSION BAND 2-8
- 2-3. MECHANICAL ADJUSTMENT PROCEDURES 2-9
  - 1. SERVICING FIXTURES & TOOLS 2-9
  - 2. PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT 2-10
  - 3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES 2-10
  - 4. OTHER ADJUSTMENT PROCEDURES 2-15
- 2-4. ELECTRICAL ADJUSTMENT PROCEDURES 2-19
  - 2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION 2-19
  - 2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION 2-32
  - LOCATION OF TEST POINTS & CONTROLS (1) 2-33
  - LOCATION OF TEST POINTS & CONTROLS (2) 2-35
  - 2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION 2-36

SECTION 3 BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS

- 3-1. CAMERA STAGE BLOCK DIAGRAM 3-1
- 3-2. POWER SUPPLY BLOCK DIAGRAM 3-6
- 3-3. SYSTEM CONTROL BLOCK DIAGRAM 3-7
- 3-4. SERVO BLOCK DIAGRAM 3-11
- 3-5. LUMINANCE & CHROMINANCE BLOCK DIAGRAM 3-15
- 3-6. E.V.F. SCHEMATIC DIAGRAM 3-19
- 3-7. E.V.F. (1) C.B.A. & E.V.F. (2) C.B.A. 3-21
- 3-8. SENSOR SCHEMATIC DIAGRAM 3-23
- 3-9. SENSOR C.B.A. 3-25
- 3-10. AUTO FOCUS SCHEMATIC DIAGRAM 3-27
- 3-11. AUTO FOCUS C.B.A. 3-29
- 3-12. PROCESS & ENCODER PACK SCHEMATIC DIAGRAM 3-32
- 3-13. PROCESS C.B.A. & ENCODER PACK C.B.A. 3-37

3-14. MAIN [POWER SUPPLY, SYSTEM CONTROL, SERVO, LUMINANCE & CHROMINANCE, HEAD AMP, AUDIO, ROTARY ERASE] C.B.A. OPERATION C.B.A. & SUB EMPHASIS C.B.A. 3-42
3-15. POWER SUPPLY SCHEMATIC DIAGRAM 3-48
3-16. AUDIO SCHEMATIC DIAGRAM 3-50
3-17. SYSTEM CONTROL & OPERATION SCHEMATIC DIAGRAM 3-52
3-18. LUMINANCE,CHROMINANCE & HEAD AMP SCHEMATIC DIAGRAM 3-59
3-19. SERVO SCHEMATIC DIAGRAM 3-64
3-20. SUB VIDEO SCHEMATIC DIAGRAM 3-67
3-21. SUB VIDEO C.B.A. 3-69
3-22. CAMERA OPERATION SCHEMATIC DIAGRAM 3-70
3-23. CAMERA OPERATION C.B.A. 3-72
3-24. CIRCUIT BOARD LAYOUT 3-73
3-25. ICs & TRs INFORMATION 3-74
3-26. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM 3-77
3-27. VTR INTERCONNECTION SCHEMATIC DIAGRAM 3-79

SECTION 4 EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW

1. CAMERA LENS SECTION 4-1
2. VTR MECHANISM SECTION (1) 4-2
3. VTR MECHANISM SECTION (2) 4-3
4. CHASSIS & FRAME SECTION 4-4
5. E.V.F. SECTION 4-5
6. PACKING PARTS & ACCESSORIES SECTION 4-6

MECHANICAL REPLACEMENT PARTS LIST 4-7
ELECTRICAL REPLACEMENT PARTS LIST 4-10

SECTION 1
GENERAL DESCRIPTION

1. HOW TO USE S-VHS MOVIE

1-1. FEATURES

Piezo Auto Focus

The focus is always automatically and precisely adjusted under all shooting situations.There is no need to manually adjust the focus ; manual focus adjustment is also possible.

Cue & Review Playback

Convenient for fast–forwarding or rewinding the tape while watching the picture.

Compact, Lightweight and Super-Portable

With a weight of only about 2.7kg, the S-VHS Movie is handy to use and carry along.

3-Way Power Supply

The S–VHS Movie can be operated on 3 different power sources: rechargeable battery pack, AC adaptor or car battery cord.

Auto White Balance

The white balance is fully automatically adjusted and continuously readjusted to any changes in illumination during shooting. Manual adjustment is also possible.

Alarm Indications

Various warning indications prevent operating mistakes and always assure successful results.

10X Power Zoom Lens

Powerful, smooth zooming between Wide–angle and telephoto is simple with convenient push–button control.

High Speed Shutter Function

This function makes it possible to catch even super–fast action with sharp countours and amazing detail.

Audio Dubbing Function

The Audio Dubbing function allows replacing the originally recorded sound with narration, back–ground music or special sound effects.

Insert Editing

Insert Editing (or Insert Recording) is handy for editing tapes by inserting new scenes into an already recorded video tape.

Recording of TV Programmes is Possible via a Line Adaptor (Supplied)

By connecting a TV set with separate Video/Audio Output Sockets via the Line Adaptor (supplied), recording TV programmes is possible.

HQ (High Quality) Picture System

Video recorders carrying the HQ symbol mark feature the new VHS High Quality Picture System. This system assures complete compatibility with VTRs that use the conventional VHS system.

Equipped with Flying (Rotary) Erase Head

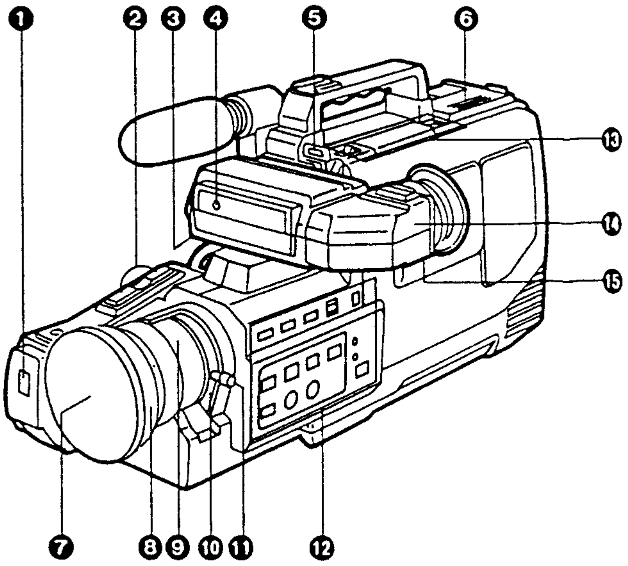
The distracting moise ordinarily generated between sucessive recordings has been virfually eliminated by the Flying Erase Head which is directly mounted on the nead cylinder. Able to precisely trace the recording tracks as it erases, it assures consistently smooth, noise–free scene transitions. Insert editing onto previously recorded tapes also gains professional–level quality.

S-VHS System

The S–VHS System has been designed to offer the advantages of an image with a horizontal resolution in excess of 400 limes. Adrances in tape and signal quality have made this higher image detail possible.

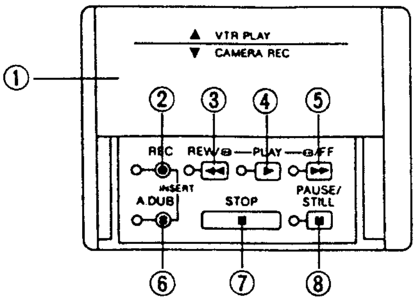
1-2. CONTROLS AND COMPONENTS

RIGHT VIEW



❶ White Balance Sensor Window
❷ Power Zoom Control Buttons
❸ Tally Indicator On/Off Switch
❹ Tally Indicator
❺ Metal Fitting for Shoulder Strap

❻ Tape Running Buttons

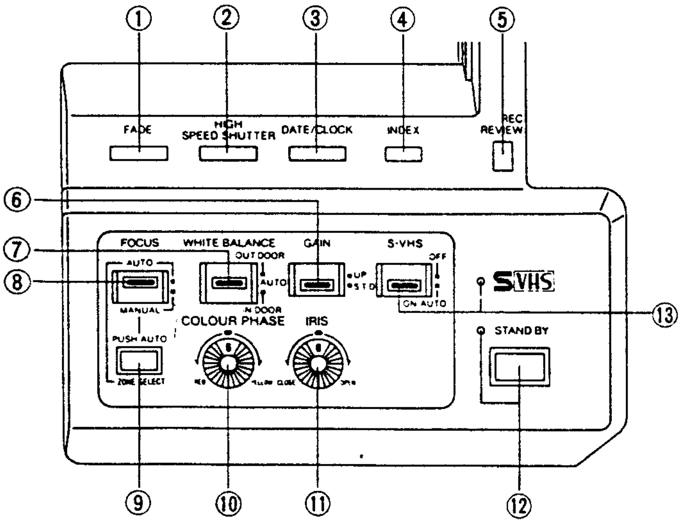

▲ VTR PLAY
▼ CAMERA REC
①
② ③ ④ ⑤
REC
REW/⊖
PLAY
⊖/FF
INSERT
A.DUB
STOP
PAUSE/STILL
⑥ ⑦ ⑧

① **Function of the Camera/VTR Selector Cover**

Closed	For camera recording.
Open (as illustrated)	For other operations than camera recording.

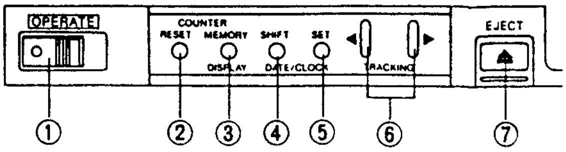
- ② Record Button
- ③ Rewind/Review Button
- ④ Play Button
- ⑤ Fast Forward/Cue Button
- ⑥ Audio Dubbing Button
- ⑦ Stop Button
- ⑧ Pause/Still Button

- ❼ Lens Cap
- ❽ Lens Hood
- ❾ Focus Ring
- ❿ Zoom Ring
- ⓫ Manual Zoom Lever
- ⓬ Main Operation Controls


① ② ③ ④ ⑤
FADE
HIGH SPEED SHUTTER
DATE/CLOCK
INDEX
REC REVIEW
⑥
⑦
⑧
FOCUS
AUTO
MANUAL
PUSH AUTO
ZONE SELECT
WHITE BALANCE
OUTDOOR
AUTO
INDOOR
GAIN
UP
STD
S-VHS
OFF
ON AUTO
S-VHS
COLOUR PHASE
IRIS
STAND BY
⑬
⑨ ⑩ ⑪ ⑫

- ① Fade Button
- ② High Speed Shutter Selector
- ③ Date/Clock Selector
- ④ Index Signal Recording Button
- ⑤ Rec Review Button
- ⑥ CCD Pick-up Element Gain Switch
- ⑦ White Balance Mode Selector
- ⑧ Focus Mode Selector
- ⑨ Focus Adjusting Button/Zone Selector
- ⑩ Colour Phase
- ⑪ Iris Close/Open Control
- ⑫ Standby Button with Indicator
- ⑬ S-VHS System Selector with Indicator

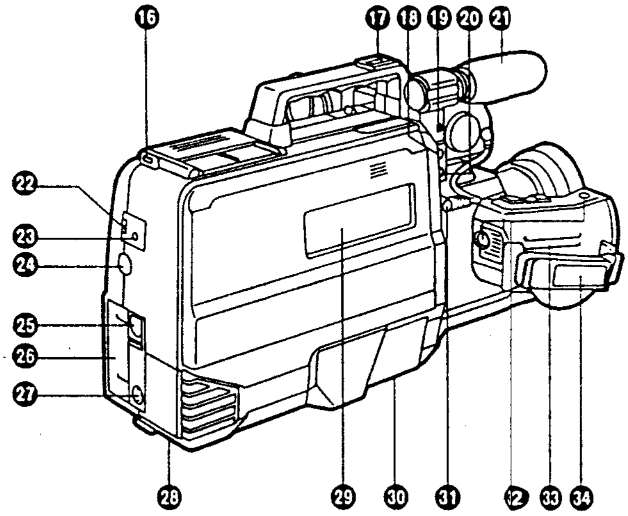
⓭ General Operation Controls


OPERATE
COUNTER
RESET
MEMORY
DISPLAY
SHIFT
DATE/CLOCK
SET
TRACKING
EJECT
① ② ③ ④ ⑤ ⑥ ⑦

- ① Operation On/Off Switch
- ② Reset Button
- ③ Memory Button
- ④ Date Shift Button
- ⑤ Date Set Button
- ⑥ Tracking Adjust Buttons
- ⑦ Eject Button

- ⓮ Electronic Viewfinder
- ⓯ Eyepiece Corrector Control

LEFT VIEW


⓰
⓱ ⓲ ⓳ ⓴ ㉑
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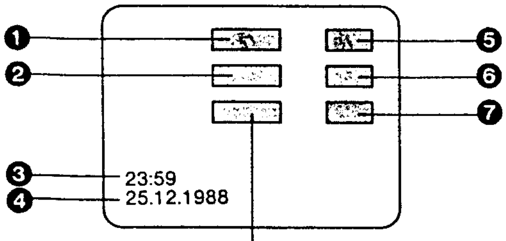
- ⓰ Metal Fitting for Shoulder Strap
- ⓱ Accessory Shoe
- ⓲ External Microphone Socket
- ⓳ Microphone Sensitivity Selector
- ⓴ Earphone Socket
- ㉑ Built-in Microphone
- ㉒ Edit Switch
- ㉓ Remote Control Socket
- ㉔ Adaptor Socket – Power Supply
- ㉕ Battery Eject Button
- ㉖ Battery Compartment
- – ㉗ S-Video Output Connector
- ㉘ Battery Compartment for Auto Date/Clock
- ㉙ Cassette Compartment
- ㉚ Tripod Receptacle
- ㉛ EVF/Character Generator Terminal
- ㉜ Start/Stop Button
- ㉝ Handgrip
- ㉞ Grip Belt

1-3. ELECTRICAL VIEWFINDER

The following indications are displayed in the Electronic Viewfinder (EVF) to inform you of the operating conditions of the S-VHS Movie.



BATT	There is little battery power left. The S-VHS Movie will be turned off in a few minutes. Replace the battery pack with a fully recharged one.
TAPE	It is impossible to record because the erasure prevention tab of the cassette is not intact.
END	During recording, the tape has reached its end. Replace the tape with a new one.
DEW	When condensation has formed inside the S-VHS Movie, the "DEW" indicator will flash and a few seconds later, the unit will turn itself off.

❶ Remaining Battery Power/Index Indication

E---F	The "▬" indications begin to disappear from right to left as the power of the battery pack weakens.
INDEX	This indicator flashes when a recording is started or when the Index Signal Recording Button is pressed and it indicates that an index signal is being recorded.

❷ Counter Indication

M0123	Tape Counter
1:23.45	Lap Time Counter

❸ Clock Indications

❹ Date Indications

❺ Recording/Insert Indication

REC	Recording
---	Recording Pause
INST	Insert
---	Insert Pause

❻ S-VHS System Indication

S-VHS	S-VHS System
" "	VHS System

❼ High Speed Shutter Mode Indication

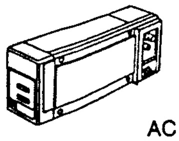
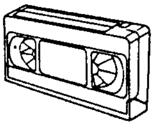
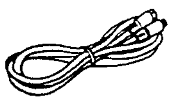
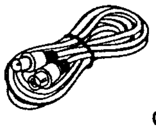
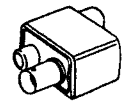
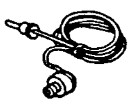
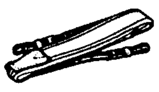
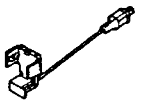
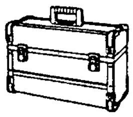
1/250	1/250 sec.
1/500	1/500 sec.
1/1000	1/1000 sec.

Manual White Balance Indication

OUT	OUTDOOR
IN	INDOOR

- Some of the above indications may light up alternately at the same place in the EVF to indicate the corresponding operating condition or warning.

1-4. S-VHS MOVIE SYSTEM ACCESSORIES

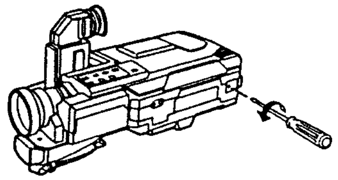
 AC Adaptor (supplied)	 Battery Pack (supplied)	 VHS Video Cassette (supplied)	 Battery for Clock Operation (supplied)
 S-Video Cord (supplied)	 DIN-DIN Coaxial Cable (supplied)	 Cloth for Cleaning the Lens (supplied)	 AV Converter Connector (supplied)
 Earphone (supplied)	 Shoulder Strap (supplied)	 Battery Pack . Charging Connector (supplied)	 System Carrying Case (supplied)

CAUTION: TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

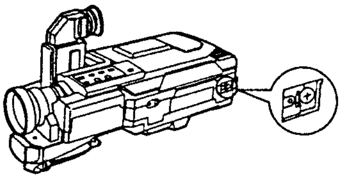
1-5. SETTING OF THE DATE AND CLOCK & RECORDING THE DATE/CLOCK INDICATIONS

How to Insert the Battery for the Clock Operation

❶ Remove the lid on the bottom of the S-VHS Movie with a (+) screwdriver.



❷ Insert the "LR1130" size battery with the polarities (⊕ and ⊖) aligned correctly and then replace the lid.
- The clock starts working as soon as the battery is inserted.

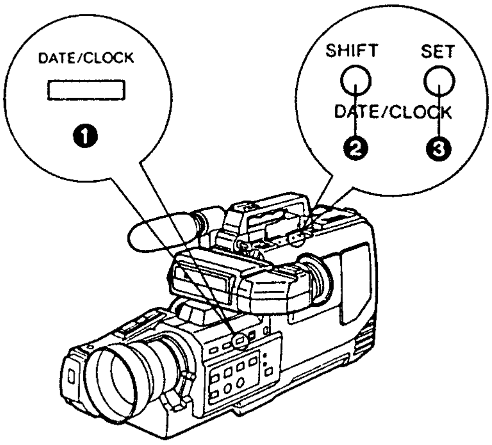


The "LR1130" size battery (supplied) is necessary for the operation of the built-in digital clock, and to memorize the Date/Clock Indications when the S-VHS Movie is turned off.

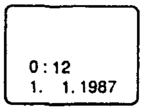
Cautions
- When this battery is almost exhausted, the whole time and date indication will flash.
- When this battery is completely exhausted, the indication "PLEASE SET BATTERY" will appear.
- To make this indication disappear, press the Date/Clock Selector twice.
- If this indication is still displayed after the battery has been replaced, turn the S-VHS Movie off and then on again.

CAUTION FOR BATTERY REPLACEMENT
- The life of the battery is about one year, however, it depends on the frequency of use. Inspect and if necessary, replace the battery once a year.
- Load the new battery with their polarities (⊕ and ⊖) aligned correctly.
- Do not apply heat to battery, or internal short-circuit may occur.
- Remove spent battery immediately and dispose of it.

Setting of the Date and Clock



❶ When the Date/Clock Selector is pushed, the indication shown on the right will appear in the EVF.



- If no battery is inserted, the indication "PLEASE SET BATTERY" will light up. In this case, insert the battery.

❷ When the Shift Button is pushed, the flashing portion will be changed in the following sequence.

Year → Month → Date → Hour → Minute ⮌

❸ When the Set Button is pushed, the flashing portion displayed will be changed in the following sequence.

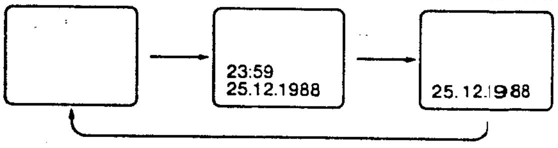
YEAR: 1987→1988→ .... →2086 ⮌
MONTH: 1→2→ .... →12 ⮌
DATE: 1→2→ ...... →28→(29)→(30)→(31) ⮌
HOUR: 0→1→ .... →23 ⮌
MINUTE: 00→01→ .... →59 ⮌

- Repeat procedures ❷ and ❸ until all five items have been set.
- Once the time and date are set, press the Shift Button in response to a precise time signal so that the clock may begin to function.

Recording the Date/Clock Indications

When the Date/Clock Selector is pushed repeatedly, the indication will change in the following sequence.

To record neither the Date nor the Clock Indication: | **To record the Date and Clock Indications:** | **To record only the Date Indication:**



REGULAR MAINTENANCE

The purpose of periodic maintenance is to preserve the functioning of this machine throughout it's useful life. The user or service dealer should perform these maintenance regularly to ensure that maximum utility is obtained from the machine.

REGULAR MAINTENANCE IS NECESSARY

The VCR is a complicated piece of equipment. It contains many belts, rollers, heads, etc., which become worn, and deteriorate as time goes by, causing trouble. Dust and dirt will also impede the proper functioning of the machine. In light of this, it is very important that overall maintenance be done according to the maintenance chart to maintain the functions of the VCR, and to avoid accidental problems. This maintenance should also be performed after any repairs are done on the equipment.

REGULAR MAINTENANCE IS RECOMMENDED

The VCR used for business applications requires particular attention for several reasons: The installation conditions and applications are not always the best. Long use times, or poor environmental conditions may adversely affect the lifespan and performance of the machine. Regular maintenance assures that the purchaser obtains the maximum value for his expenditure. Accordingly, the necessity of regular maintenance should be fully explained at the time of sale, as well as during after-sale repairs.

MAINTENANCE PARTS LOCATION

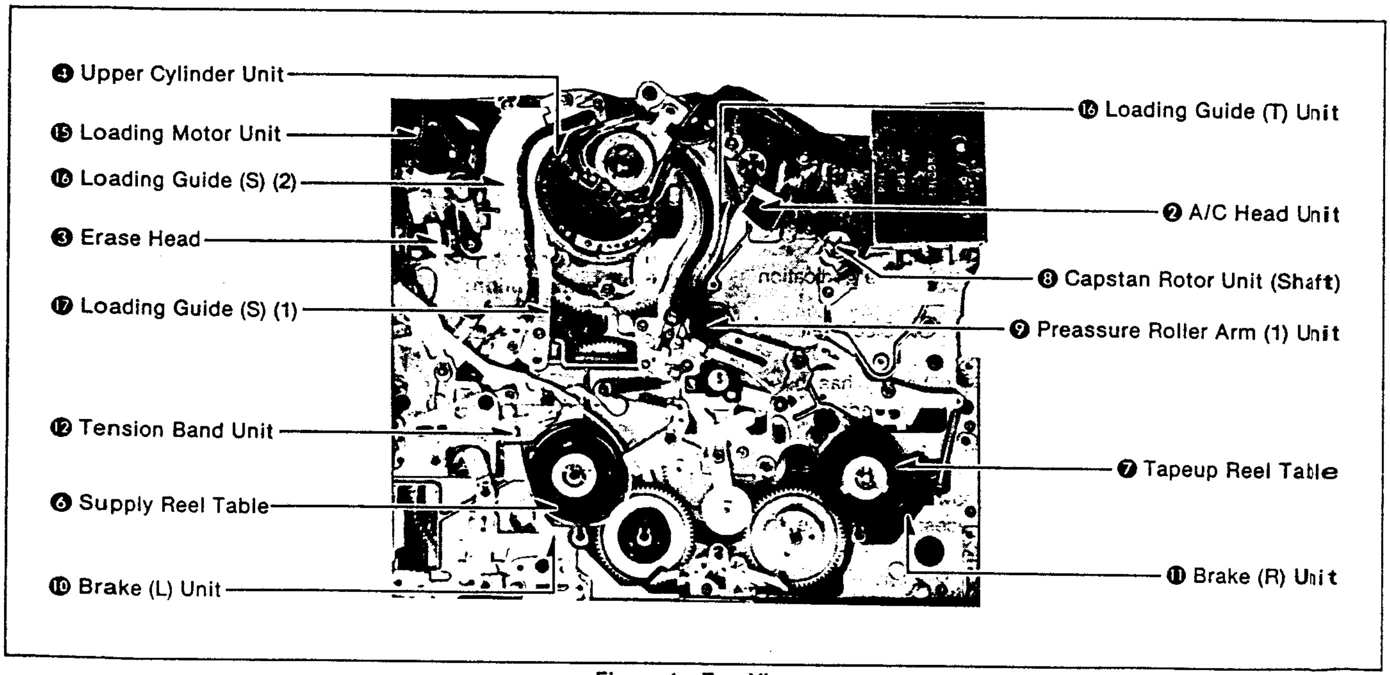

❹ Upper Cylinder Unit
⓯ Loading Motor Unit
⓰ Loading Guide (S) (2)
❸ Erase Head
⓱ Loading Guide (S) (1)
⓬ Tension Band Unit
❻ Supply Reel Table
❿ Brake (L) Unit
⓰ Loading Guide (T) Unit
❷ A/C Head Unit
❽ Capstan Rotor Unit (Shaft)
❾ Preassure Roller Arm (1) Unit
❼ Tapeup Reel Table
⓫ Brake (R) Unit

Figure 1 Top View

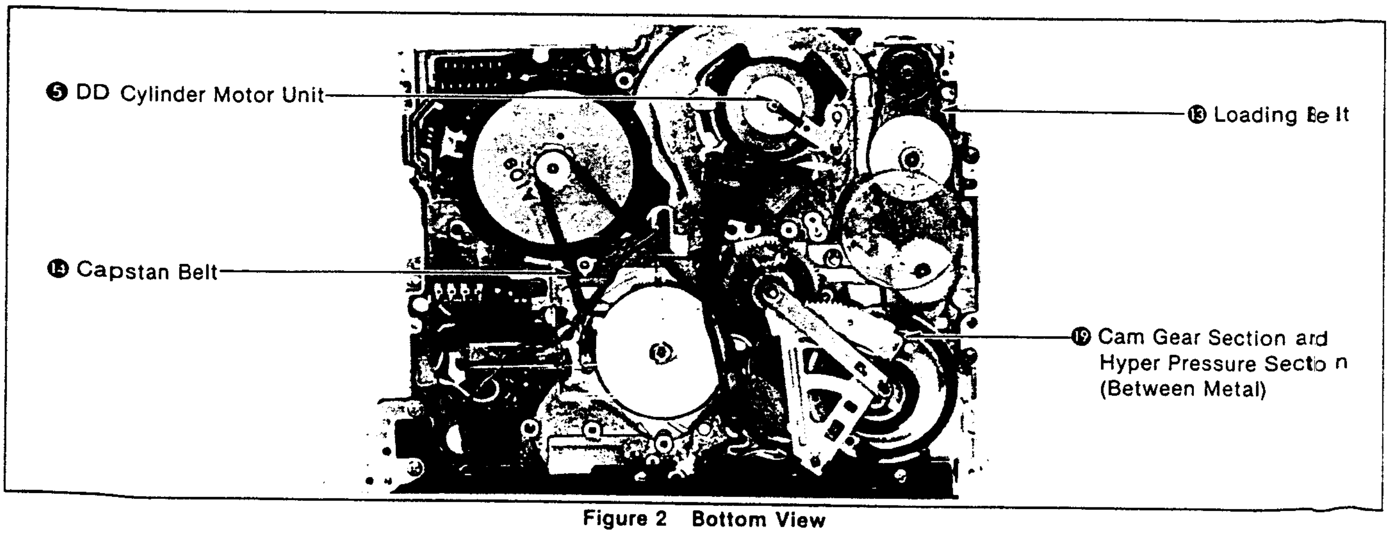

❺ DD Cylinder Motor Unit
⓮ Capstan Belt
⓭ Loading Belt
⓳ Cam Gear Section and
Hyper Pressure Section
(Between Metal)

Figure 2 Bottom View

MAINTENANCE CHART

Since the parts are keyed to the parts location diagrams, when you replace the following parts, refer to Figures 1 and 2.
The replacement periods of the parts are average of equipment that is used in accordance with the instruction and installation manual.
Note that the periods may vary considerably according to environmental, usage conditions and quality of cassette tape.

	Part Name	Unit or Part No.	Hour									
			500	1000	1500	2000	2500	3000	3500	4000	4500	5000
❶	Tape Transporters	——	●	●	●	●	●	●	●	●	●	●
❷	A/C Head Unit	VED0041	●	●	●	●	●	●	●	◎	●	●
❸	Erase Head	VBS0021	●	●	●	●	●	●	●	◎	●	●
❹	Upper Cylinder Unit	VEH0422	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎
❺	DD Cylinder Motor Unit	VEG0674	●	●	●	●	●	●	●	●	●	◉
❻	Supply Reel Table	VXR0128	●	●	●	●△	●	●	●	●△	●	●
❼	Takeup Reel Table	VXR0171	●	●	●	●△	●	●	●	◎△	●	●
❽	Capstan Rotor Unit (Shaft)	VXP0634	●	●	●	●	●	●	●	●	●	●
❾	Pressure Roller Arm (1) Unit	VXL1652	●	◉	●	◎	●	◉	●	◎	●	◉
❿	Brake (L) Unit	VXZ0206				◎				◎		
⓫	Brake (R) Unit	VXZ0207				◎				◎		
⓬	Tension Band Unit	VXZ0245				◎				◎		
⓭	Loading Belt	VDV0167				◎				◎		
⓮	Capstan Belt	VDV0155				◎				◎		
⓯	Loading Motor Unit	VEM0288				◎				◎		
⓰	Loading Guide (T) Unit	VXA2257					■					■
⓱	Loading Guide (S) (1)	VMD1155					■					■
⓲	Loading Guide (S) (2)	VMD1128					■					■
⓳	Cam Gear Section and Hyper Pressure Section (Between Metal)	——								■		

*NOTE:

Symbol	Maintenance	Requirement	Remark
●	Cleaning	Freon TF, Ethyl-alcohol or Cleaning Liquid (Purchase locally)	Wipe dirt from the parts using soft cloth impregnated with Freon TF or Ethyl-Alcohol. Note: When cleaning rubber parts, avoid using excessive alcohol since it may accelerate deterioration of these parts. After cleaning with alcohol, wipe the alcohol quickly and thoroughly.
◎	Replacement	——	——
◉	Replacement (In case)	——	If the regular cleaning has not been done.
△	Lubrication	High Quality Spindle Oil (Purchase locally)	Supply one or two drops of oil.
■	Greasing	Molytone Grease (MOR265)	Wipe the old grease and apply new grease.

SECTION 2
ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES

2-1-1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembyly steps for the cabinet parts and the P.C. boards in order to find the items necessary for servicing.
When reassembling perform the steps in the reverse order.

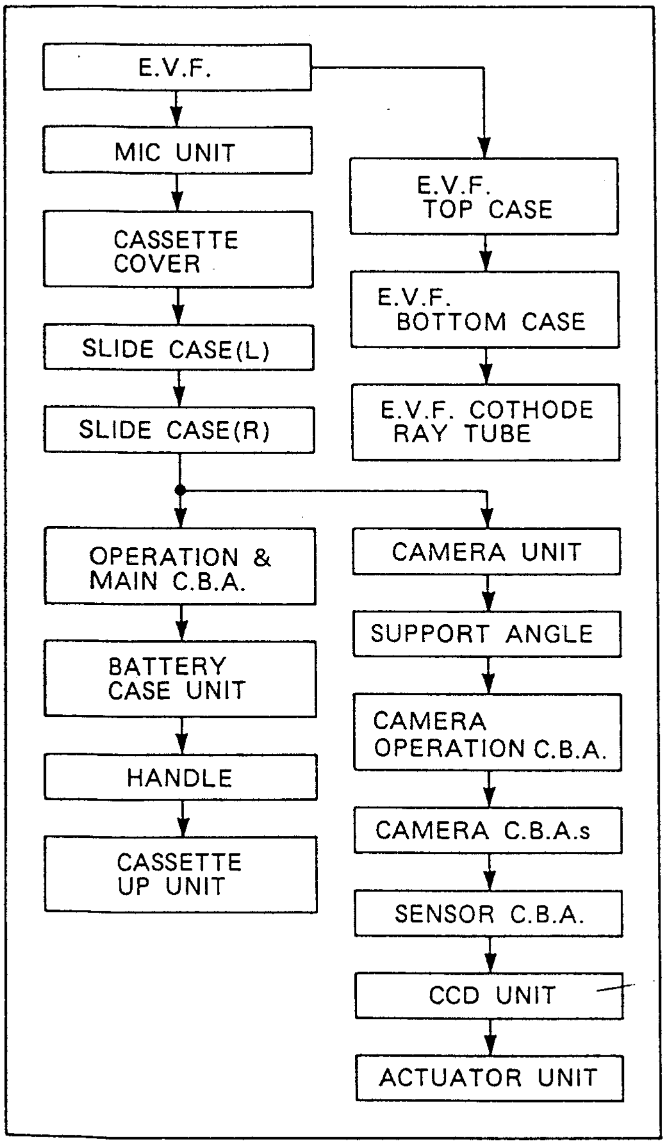

E.V.F.
MIC UNIT
CASSETTE COVER
SLIDE CASE(L)
SLIDE CASE(R)
E.V.F. TOP CASE
E.V.F. BOTTOM CASE
E.V.F. COTHODE RAY TUBE
OPERATION & MAIN C.B.A.
BATTERY CASE UNIT
HANDLE
CASSETTE UP UNIT
CAMERA UNIT
SUPPORT ANGLE
CAMERA OPERATION C.B.A.
CAMERA C.B.A.s
SENSOR C.B.A.
CCD UNIT
ACTUATOR UNIT

Fig. D1

Note:
(1) When removing the cabinet, work with care so as not to break the locking tabs.
(2) Place a cloth or some other soft material under the P.C. Boards or Unit to prevent damage.
(3) When re–installing, ensure that the connectors are connected and electrical components have not been damaged.
(4) Do not supply power to the Unit during disassembly.

2-1-2. DETAILED DISASSEMBLY METHOD

1. Removal of E.V.F. Unit

(1) Remove the E.V.F. Unit connector.
(2) Slide the E.V.F. Unit in the direction shown by the arrow.
(3) Remove the E.V.F. Unit while pushing on the Locking Lever on the Bottom of the Unit.
(4) Remove the earth lead from cabinet.

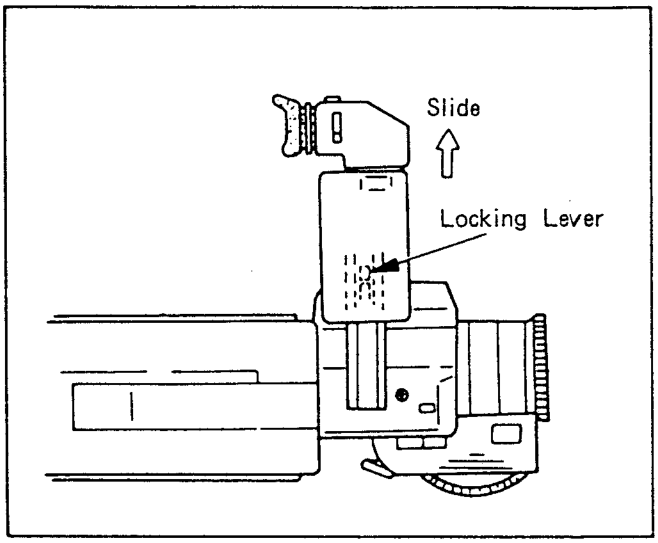

Slide
Locking Lever

Fig. D2

2. Removal of MIC Unit

(1) Remove 1 Screws (A).
(2) Slide the MIC Unit in the direction shown by the arrow.
(3) Disconnect the connector on the MIC Unit.
(4) Remove the earth read from cabinet.

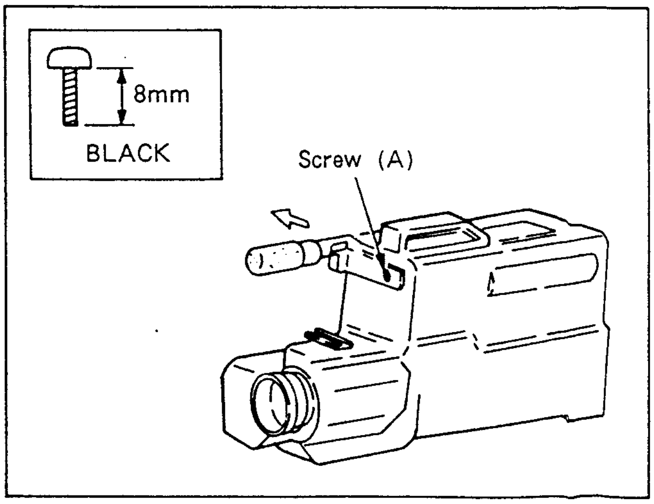

8mm
BLACK
Screw (A)

Fig. D3

3. Removal of Cassette Cover

(1) Remove 2 screws (B).
(2) Pull the Cassette Cover straight up to remove.

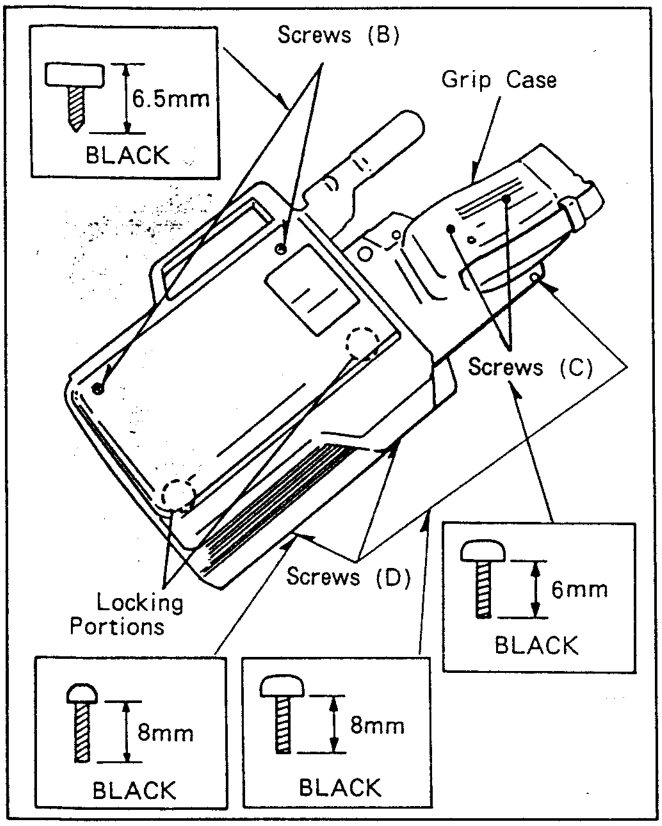

Screws (B)
6.5mm
BLACK
Grip Case
Screws (C)
Screws (D)
Locking Portions
6mm
BLACK
8mm
BLACK
8mm
BLACK

Fig. D4

Note:
Be carefull not to damage the Alignment Tabs, when removeing or realigning the Cassette Cover.

4. Removal of Side Case (R) Unit

(1) Remove 9 screws (E) in Fig. D5.
(2) Lift the Side Case (R) unit slightly. Then disconnect the connectors on the Side Case (R) Unit.

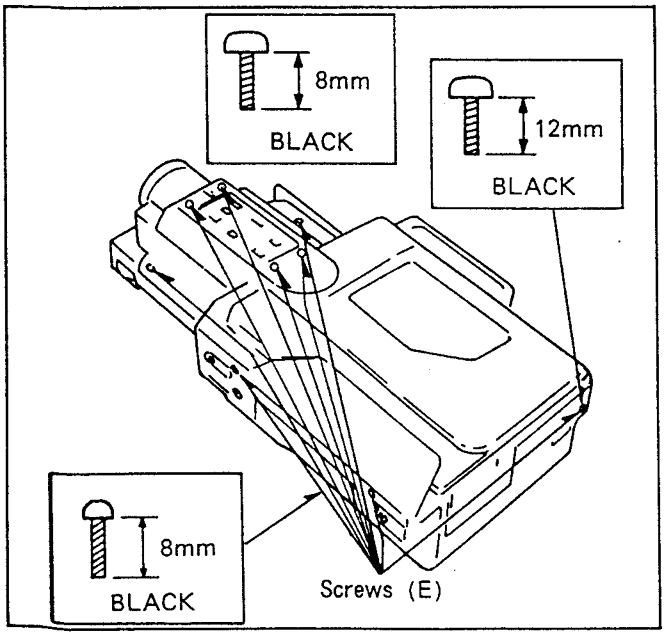

8mm
BLACK
12mm
BLACK
8mm
BLACK
Screws (E)

Fig. D5

5. Removal of Side Case (L) Unit

(1) Remove 2 screws (C) shown in Fig. D4.
(2) Remove 3 screws (D) shown in Fig. D4.
(3) Remove the lens hood and remove screw (F) shown in Fig. D6.

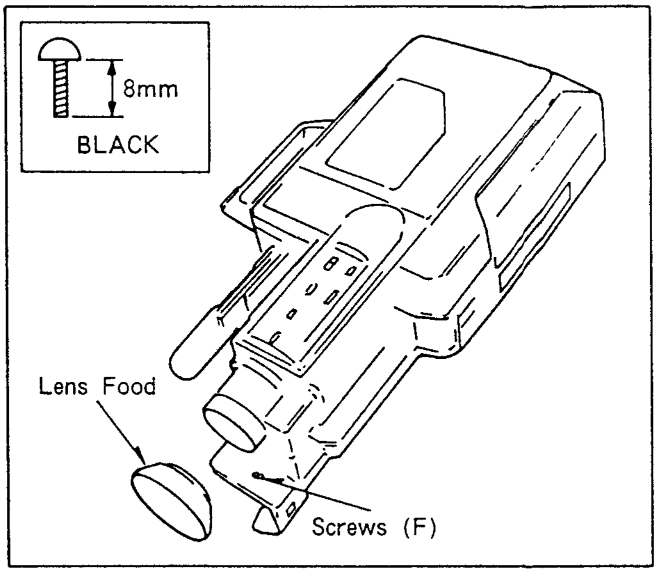

8mm
BLACK
Lens Food
Screws (F)

Fig. D6

(4) Lift the Side Case (L) Unit slightly. Then disconnect the 2 connectors..

6. Removal of Operation Panel Unit

(1) Unlock 4 locking Tabs (H).
(2) Lift the operation panel unit up slightly.

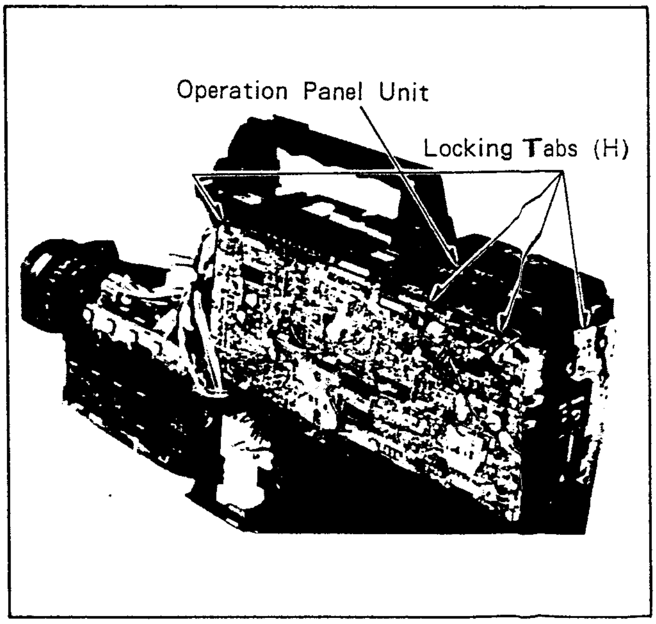

Operation Panel Unit
Locking Tabs (H)

Fig. D7

7. Opening of Operation C.B.A.

(1) Remove 2 screws (I).
(2) Disconnect P1 on operation C.B.A.
(3) Unsnap 2 locking Tabs (J).
(4) Open Operation/Main C.B.A.

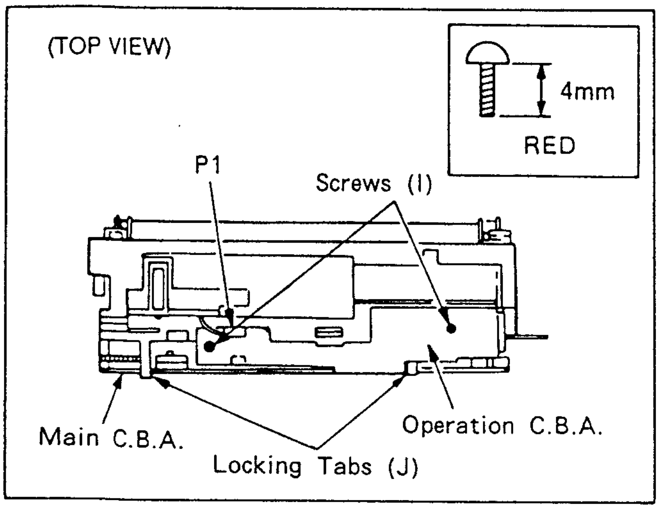

(TOP VIEW)
4mm
RED
P1
Screws (I)
Main C.B.A.
Operation C.B.A.
Locking Tabs (J)

Fig. D8

8. Opening of Battery Case Unit

(1) Open Main/Operation C.B.A. as shown in Fig. D9.
(2) Remove 3 screws (K) and 2 screws (L). Then lift the Battery Compartment slightly in order to release it from the locking pin.
(3) Loosen wires located around the Battery Compertment.

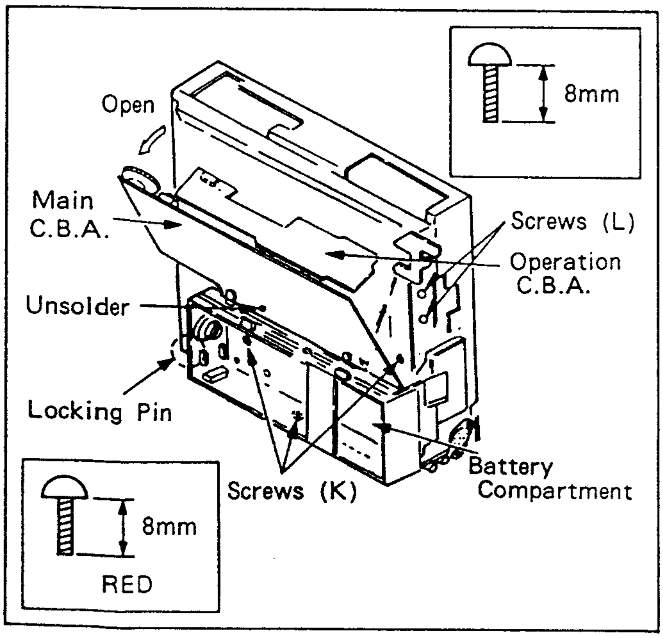

8mm
Open
Main C.B.A.
Screws (L)
Operation C.B.A.
Unsolder
Locking Pin
Battery Compartment
Screws (K)
8mm
RED

Fig. D9

9. Removal of Handle Unit

(1) Remove 7 screws (M) and 3 screws (N).
(2) Remove the Handle unit.

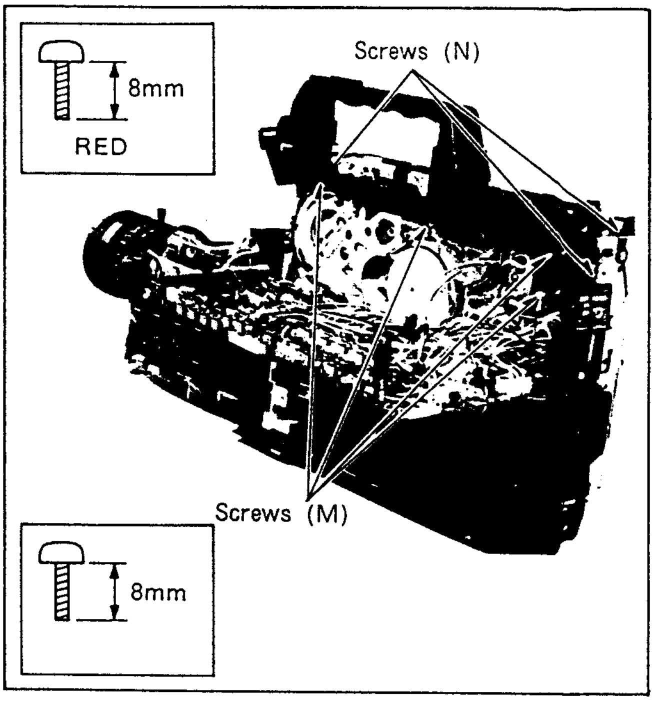

8mm
RED
Screws (N)
Screws (M)
8mm

Fig. D10

10. Removal of Cassette Compartment

(1) Remove 4 screws (O).
(2) Remove the cassette up unit.

Note:
When reinstalling the cassette up unit, install it in the closed (cassette down) condition.

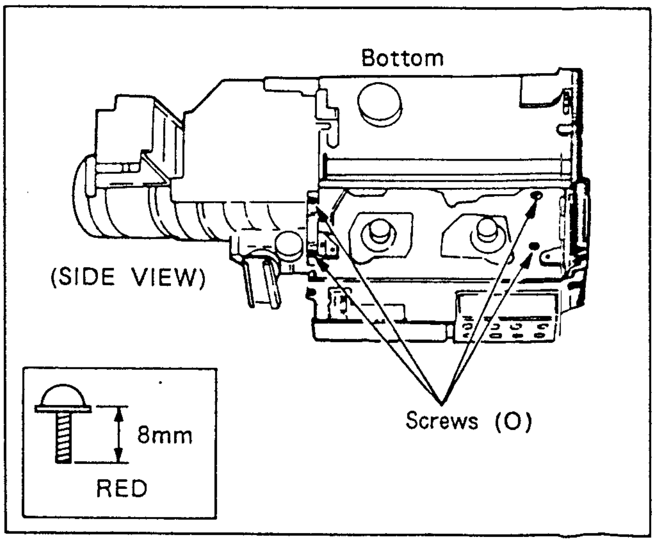

Bottom
(SIDE VIEW)
8mm
RED
Screws (O)

Fig. D11

11. Removal of Camera Unit

(1) Remove 2 screws (P).
(2) Disconnect connector P3004 and flexible connector P3003 on Main C.B.A.

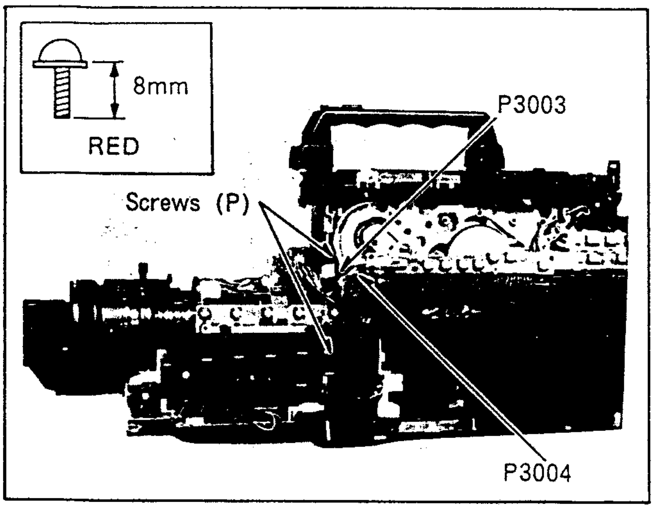

8mm
RED
P3003
Screws (P)
P3004

Fig. D12

12. Removal of Support Angle

(1) Remove 2 screws (Q).
(2) Remove Support Angle.

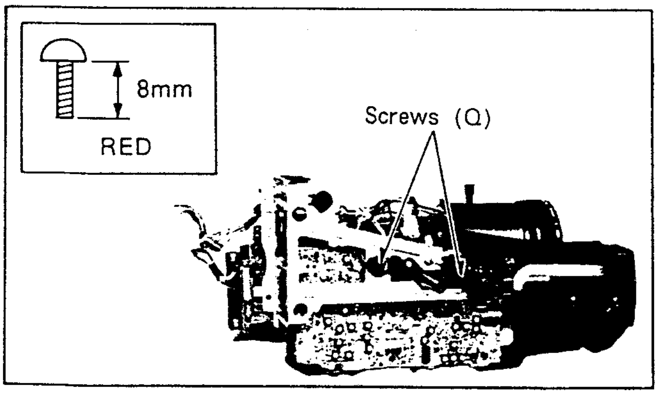

8mm
RED
Screws (Q)

Fig. D13

13. Removal of Camera Operation C.B.A.

(1) Remove 2 screws (R).
(2) Remove Camera Operation C.B.A.

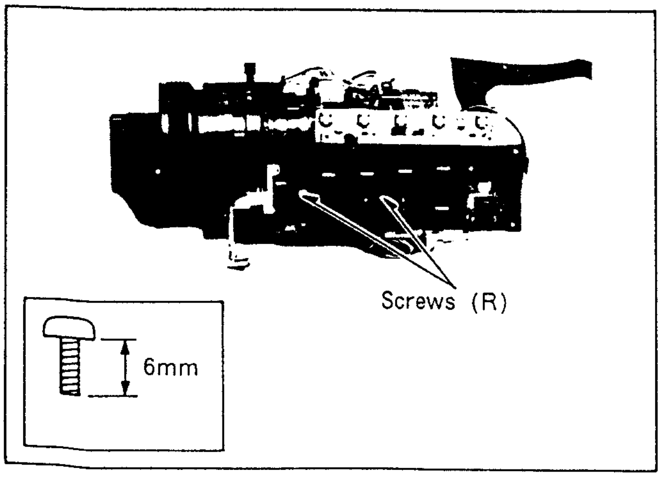

Screws (R)
6mm

Fig. D14

14. Removal of Camera C.B.A.

(1) Remove 5 screws (S) on Auto Focus and Process C.B.A's.
(2) Remove Auto Focus and Process C.B.A.

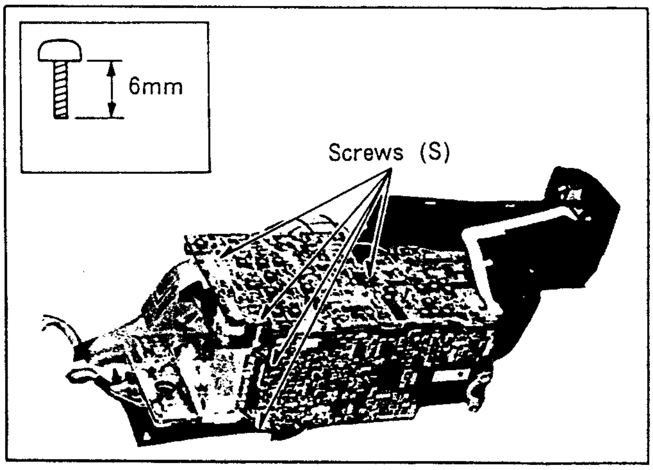

6mm
Screws (S)

Fig. D15

15. Removal of Sensor C.B.A.

(1) Remove the 3 screws (T).
(2) Remove Shield Case.

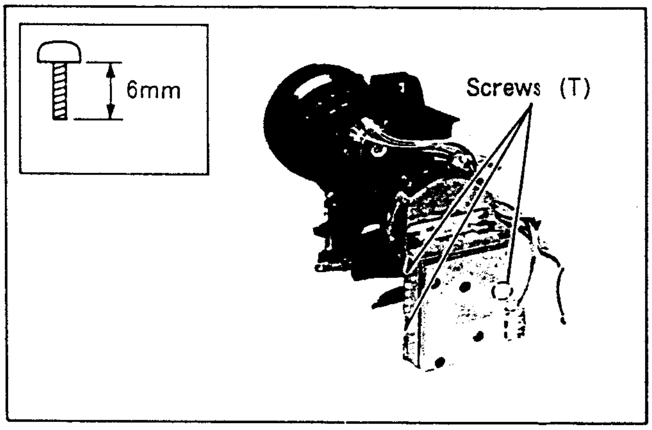

6mm
Screws (T)

Fig. D16

(3) Remove 2 screws (U) on sensor C.B.A.
(4) Remove Sensor C.B.A. then remove flexible wire FP201. On Sensor C.B.A.

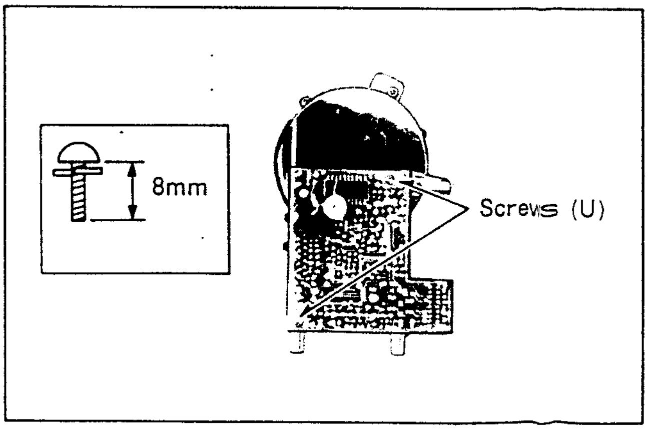

8mm
Screws (U)

Fig. D17

16. Removal of CCD Unit

(1) Remove 2 screws (V) then take out the Shield Case.
(2) Remove 2 screws (W) then take out the Shield Case.
(3) Remove 2 screws (X) then take out the CCD Unit.

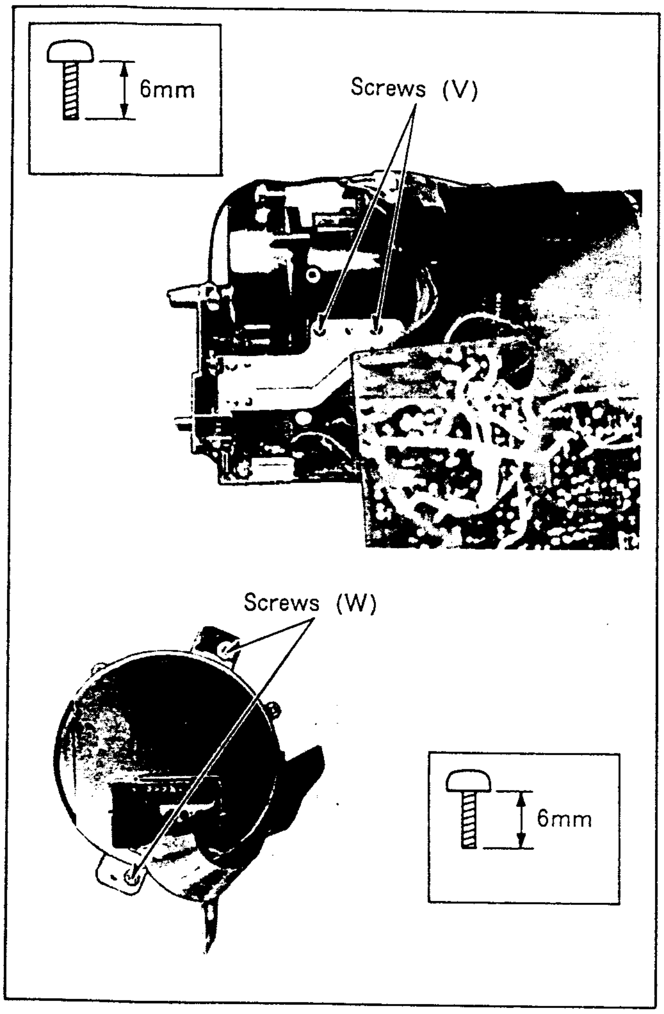

6mm
Screws (V)
Screws (W)
6mm

Fig. D18

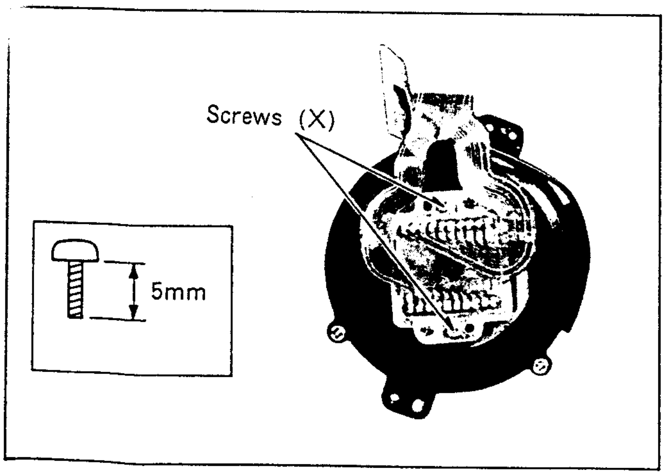

Screws (X)
5mm

Fig. D19

17. Removal of Actuator Unit

(1) Remove 3 screws (Y) and remove actuator unit.

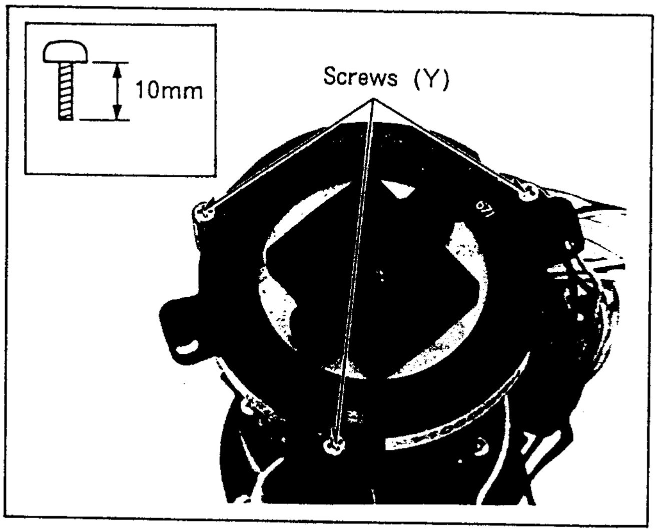

10mm
Screws (Y)

Fig. D20

18. Disassembly of E.V.F. Unit

(1) Remove 3 screws (A) on the bottom of the E.V.F. unit and then remove the Bottom Case.
(2) Remove CRT Case–B from CRT Case–A as shown in Fig. D21.

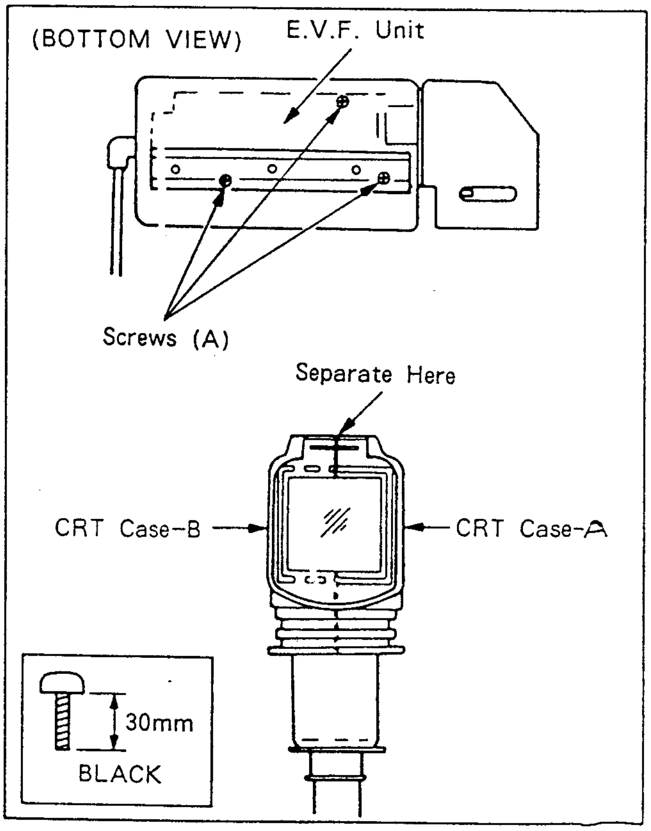

(BOTTOM VIEW)
E.V.F. Unit
Screws (A)
Separate Here
CRT Case–B
CRT Case–A
30mm
BLACK

Fig. D21

(3) Lift the CRT Assembly up as shown in Fig. D22.

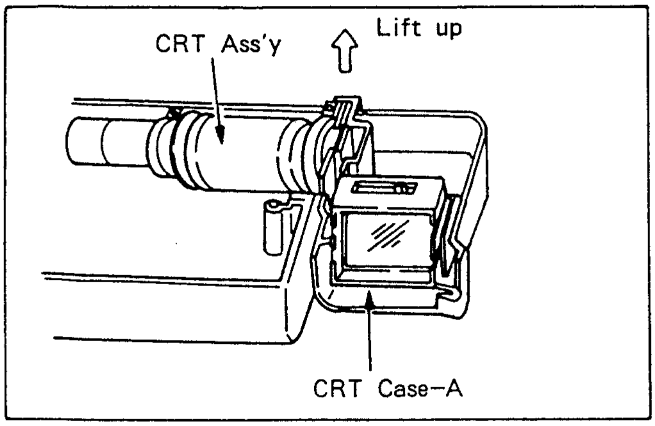

CRT Ass'y
Lift up
CRT Case–A

Fig. D22

(4) Rotate Nut (B) and then pull DY Assembly in the direction shown in Fig. D23 to remove it. Then the CRT can be replaced.
(5) For reinstallation, reverse the above steps.

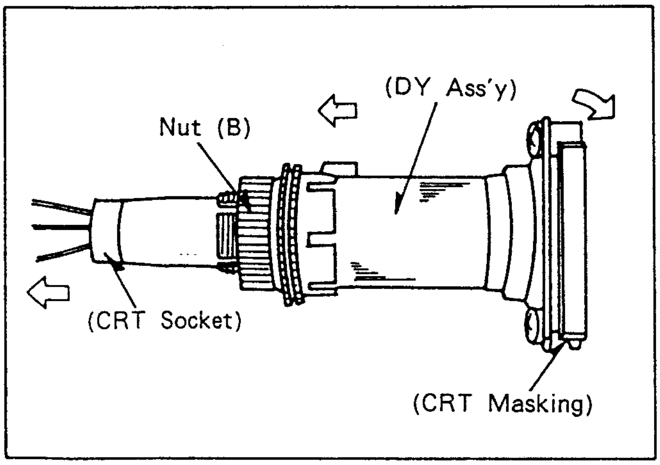

(DY Ass'y)
Nut (B)
(CRT Socket)
(CRT Masking)

Fig. D23

2-2. REPLACEMENT PROCEDURES

2-2-1. REPLACEMENT OF CCD UNIT

(1) After removing of the CCD unit install the new CCD unit.
(2) Assemble the unit suject to the reverse steps of disassembly procedures.

Note:
(1) Do not touch the sureface of CCD unit.
(2) Confirm the whole adjustment procedures for Camera section after replacing this CCD unit.

2-2-2. REPLACEMENT OF ZOOM MOTOR UNIT

(1) Remove 2 screws (C) and remove Zoom Motor Unit.
(2) Install the new Zoom Motor Unit. Prior to this replacement, no dust around the Zoom Motor, especially around the gear unit chould be confirmed.

2-2-3. REPLACEMENT OF FOCUS MOTOR UNIT

(1) Remove the 2 screws (D) and remove the Focus Motor Unit.
(2) Install the new Focus Motor Unit.
Prior to this replacement, no dust around the Focus Motor Unit, especially around the gear should be confirmed.
(3) After this replacement, all the correct adjustments for all parts of auto-focus should be comfirmed.

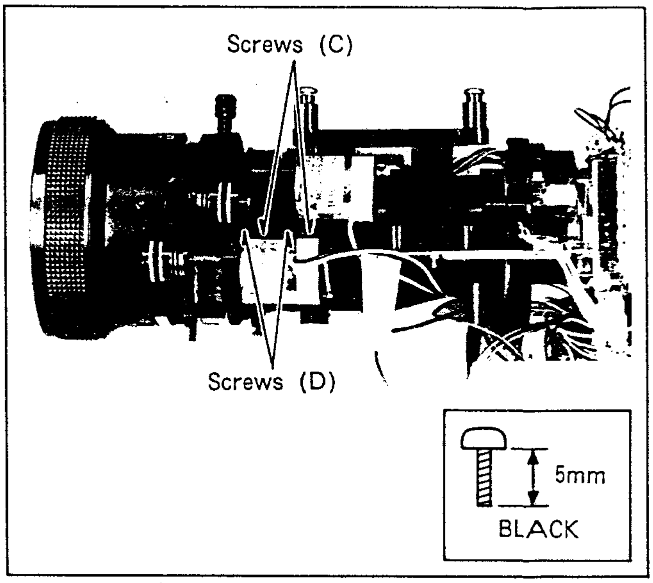

Screws (C)
Screws (D)
5mm
BLACK

Fig. R1

2-2-4. REPLACEMENT OF DD CYLINDER UNIT

Work with extreme care when removing or replacing the DD cylinder unit.
Do not touch video heads during servicing.

(1) Remove the screw (E) to take the Earth Holder Unit out.

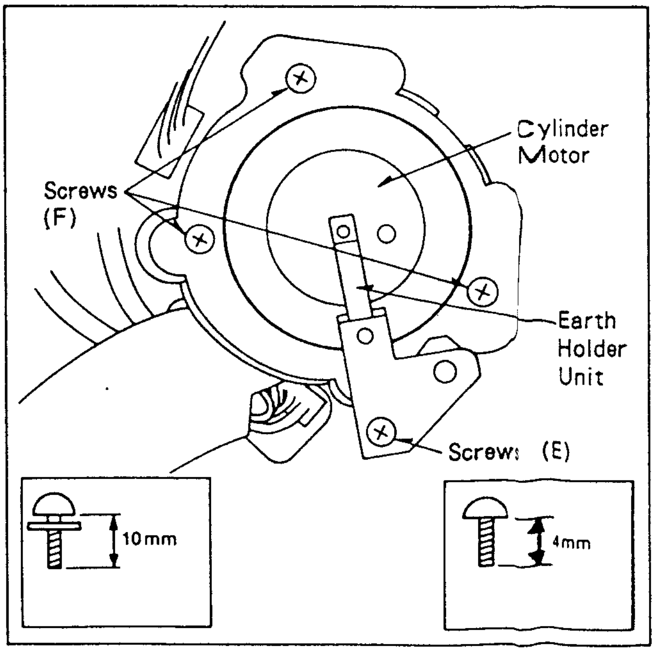

Cylinder Motor
Screws (F)
Earth Holder Unit
Screws (E)
10mm
4mm

Fig. R2

(2) Remove the 3 screws (F) to take DD cylinder unit out.

Note:
Since there is very little clearance between DD cylinder unit and chassis handle with care.

(3) Reinstall the new DD cylinder unit, tighten the 3 screws (F).

2-2-5. REPLACEMENT OF CAPSTAN STATOR UNIT

- * Equipment required:
  Reel Table Height Gauge (VFK0190)
- * Specification:.....0.5+–0.05mm

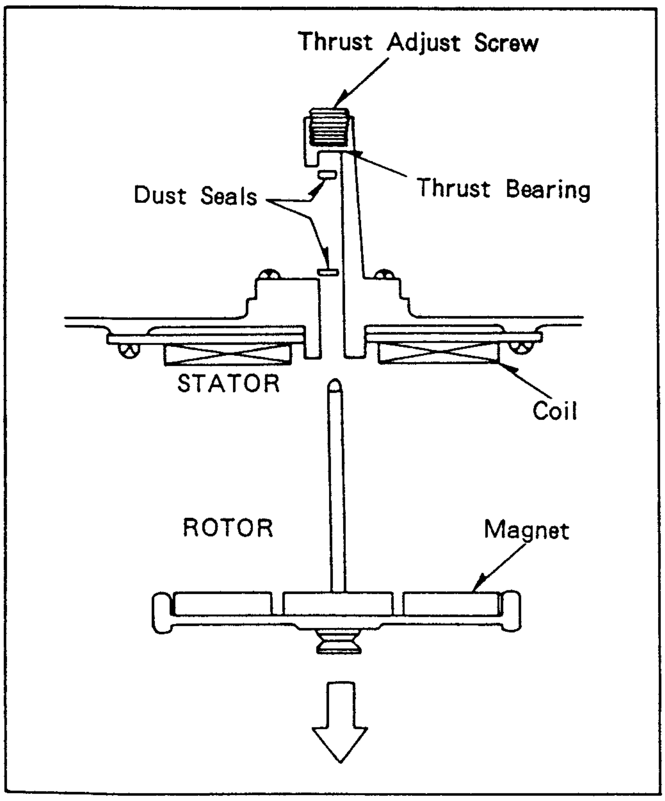

Thrust Adjust Screw
Dust Seals
Thrust Bearing
STATOR
Coil
ROTOR
Magnet

Fig. R3

(1) Remove the 2 screws and take belt cover off. After that remove the capstan belt.
(2) Tighten the Thrust Adjust Screw fully and pull the capstan rotor.

Note:
In this time pay attention not to lose two pieces of Dust Seal.

(3) Replace the new rotor with two pieces of Dust Seal.

Note:
(1) Pay attention to the replaced new rotor not to shock because of magnet absorbtion. So hold the rotor firmly and replace it carefully.
(2) In this replacement, do not touch the Capstan shaft with any hard material like drivers or tweezers.

(4) After replacement, wipe off the Capstan shaft to remove oil, grease or dust.
(5) Unscrew Thrust Adjust Screw till the rotor is just touching to the stator.
(6) Turn this mechanism upside down and place the Reel Table Height Gauge so that the gauge fits to the chassis correctly, and read the height.
(7) Adjust the Thrust Adjust Screw so that the height difference just meets in the specification (0.5 +– 0.005mm) reading the height from the gauge.

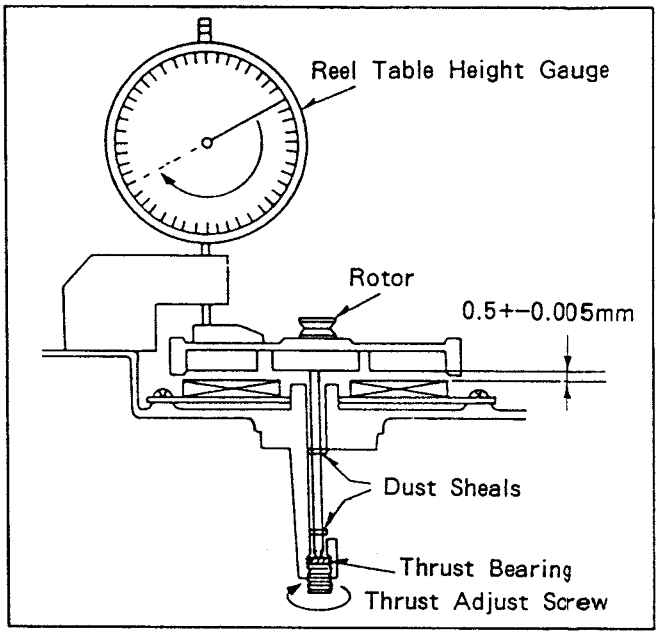

Reel Table Height Gauge
Rotor
0.5+–0.005mm
Dust Sheals
Thrust Bearing
Thrust Adjust Screw

Fig. R4

Note:
If the Thrust Adjust Screw is fully opened, you have to pay attention not to lose Thrust Bearing.
When it is fixed, confirm that the direction of Thrust Bearing is correct as shown below.

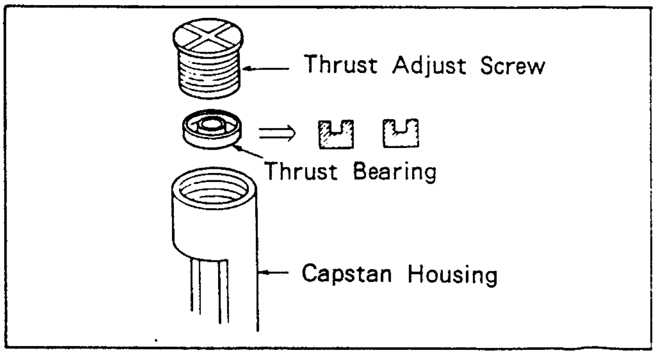

Thrust Adjust Screw
Thrust Bearing
Capstan Housing

Fig. R5

2-2-6. REPLACEMENT OF TENSION BAND

(1) Remove the cassette conpartment.

(2) Remove a retaining ring and take out a Rew Arm (A) Unit.

(3) Remove a rataining ring and a snap washer and take out a tension Band Unit.

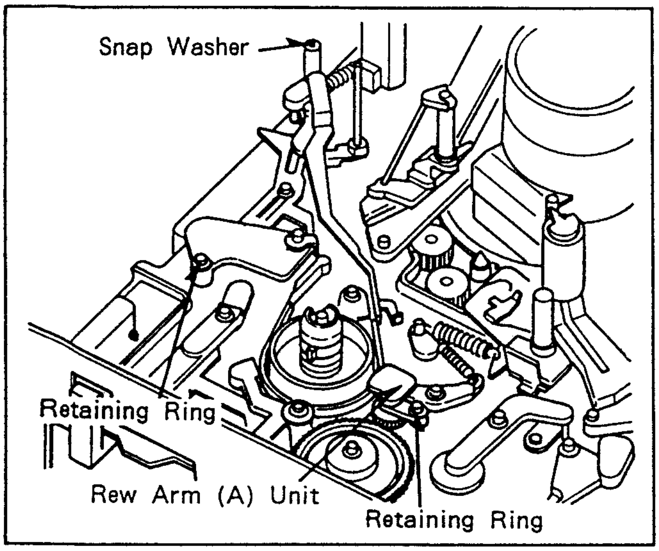

Snap Washer
Retaining Ring
Rew Arm (A) Unit
Retaining Ring

Fig. R6

(4) Remove a Tension Band from Band Release Arm and Tension Arm Unit.

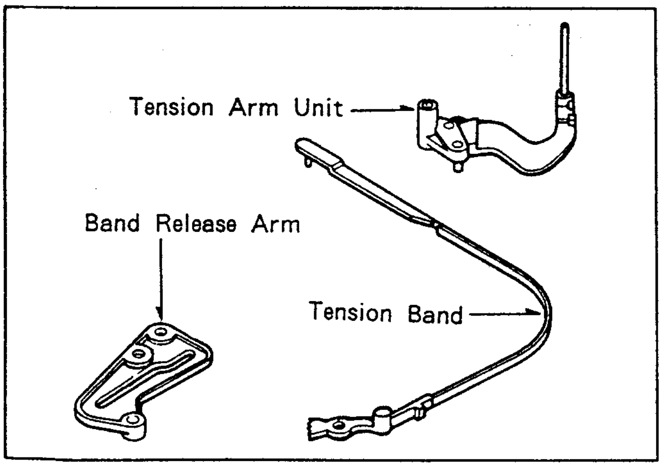

Tension Arm Unit
Band Release Arm
Tension Band

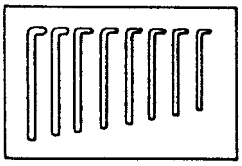
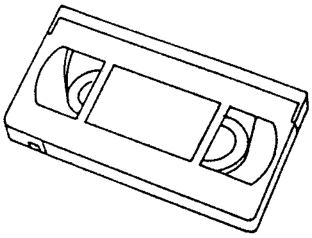
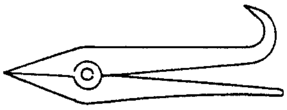
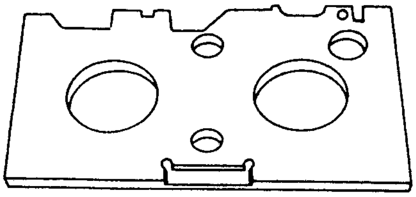
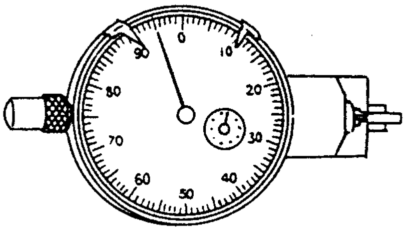
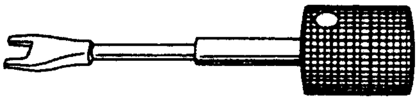
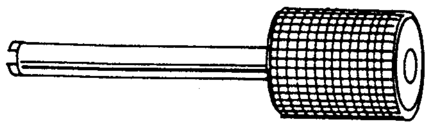
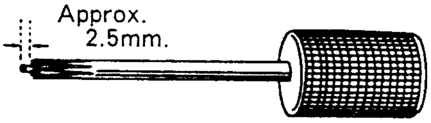
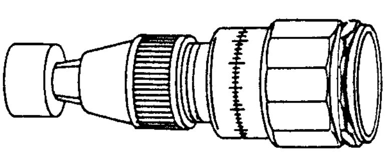
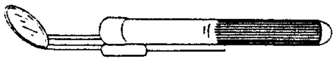
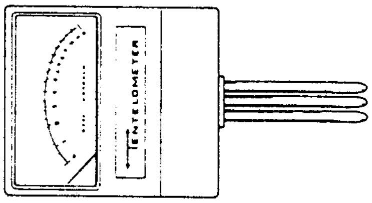
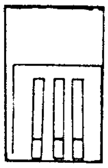
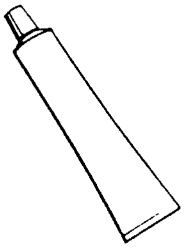
Fig. R7

(5) Replace a new Tension Band by Proceeding reverse steps shown above.

Memo:

2-3. MECHANICAL ADJUSTMENT PROCEDURES

1. SERVICING FIXTURES & TOOLS

VFK0326 Hex Wrench Set (0.7, 0.9, 1.2, 1.5, 1.6, 2, 2.4, 3mm) 	VFM8180HMDH VHS Alignment Tape 	VFK0335 Retaining Ring Remover (3mm/4mm) 
VFK0191. Post Adjustment Plate 	VFK0190 Reel Table Height Gauge 	VFK0328 H-Position Adj. Fixture 
VFK0329 Post Adjustment Screwdriver 	VFK0157 Fine Adjustment Screwdriver  Approx. 2.5mm. Grind the top portion approximately 2.5mm	VFK0133 Dial Torque Gauge VFK0134 Adaptor for VFK0133 VFK0180 (Plastic Clamper Only) 
VFK0343 Check Light 	VFK0132 Back Tension Meter (TZ-H7-UM) (Tentelometer, Made in U.S.A.) 	VFK27 Head Cleaning Stick 
MOR265 Morlytone Grease 	High Quality Machine Oil <Purchase Locally> (Reel Shaft, Capstan Shaft etc.)	
	Cleaning Liquid (Freon TF., Alchol) <Purchase Locally> (Tape Transport Rubber Parts etc.)	

2. PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT

(1). Position the video head to clean and hold the upper cylinder to keep it from turning while cleaning.
(2). Gently rub the video head in direction of tape travel whith Head Cleaning Stick.
(3). Repeat for the other three video heads.

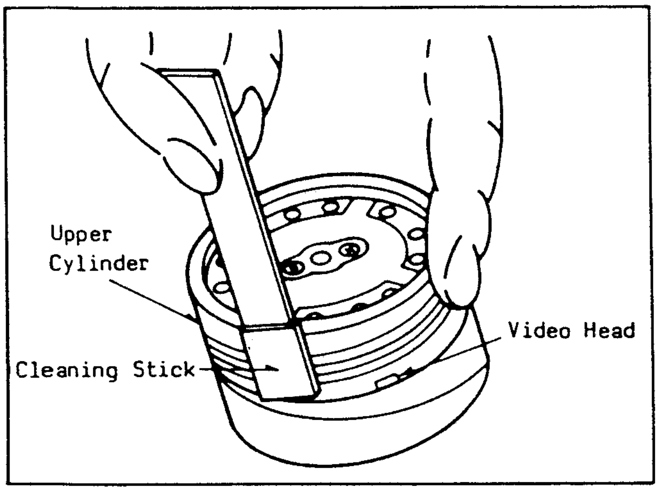


Fig. U1

Note:
(1) Do not rub vertically.
(2) Do not apply any pressure to heads.
If contamination is not easily removed, continued gentle wiping will usually remove the substance.

3. TAPE INTERCHANGEABILITY ADJUSTMENT PROCEDURES

3-1. ADJUSTMENT FLOW CHART

This flow chart describes the order of steps for adjusting the tape guide posts and A/C head in order to gain access to the items needing servicing.

AFTER REINSTALLING THE P1 POST, OR IF THE P1 POST HAS BEEN TURNED EXCESSIVELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

* **Note:**
Adjust the tape guide post P1 only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING ALL POSTS OR IF ALL POSTS HAVE BEEN TURNED EXTREMELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT.

AFTER REINSTALLING THE A/C HEAD.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

* **Note:**
Do not change the height of P4 post.

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT.

3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH.

3-2-8. COARSE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

3-2-9. FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION (X-VALUE).

AFTER REINSTALLING THE P4 POST, OR IF THE P4 POST HAS BEEN TURNED EXCESSIVELY.

3-2-1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS.

- **Note:**
  Adjust the P4 post only.

3-2-2. CONFIRMATION OF THE TAPE TRANSPORT.

- **Note:**
  Adjust the P4 post only.

3-2-4. CONFIRMATION OF THE A/C HEAD TILT.

3-2-5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY).

AFTER REINSTALLING THE PULL-OUT POST (P5 POST).

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST).

- **Note:**
  Do not readjust any other post.

3-2. ADJUSTMENT PROCEDURES

3–2–1. COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS (P1, P2, P3 AND P4)

- Equipment Required:
  Post Adjustment Plate....................VFK0191
  Reel Table Height Gauge..................VFK0190
  Nut Driver (Purchase locally)
  Post Adjustment Screwdriver..............VFK0329

1. Remove the cassette compartment from the mechanical chassis.
2. Place the Post Adjustment Plate over the reel tables.
   (Fig. M1)
   Confirm that the Post Adjustment Plate is firmly seated.

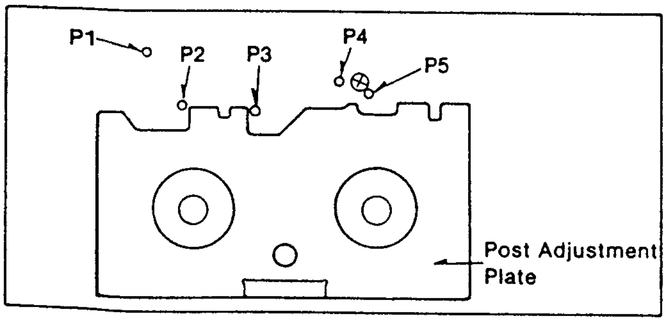


Fig. M1

3. Remove the post cap on post P4.
4. Lower all 4 tape guide posts so that the lower tape guide on each post is below the top surface of the adjustment plate.
   Use the post Adjustment screwdriver to lower posts P2 and P3, and the Nut Driver to lower Posts P1, P4 and P5.
5. Place the Reel Table Height Gauge on the Post Adjustment Plate and lower the scraper so that it touches the plate. (Fig. M2)

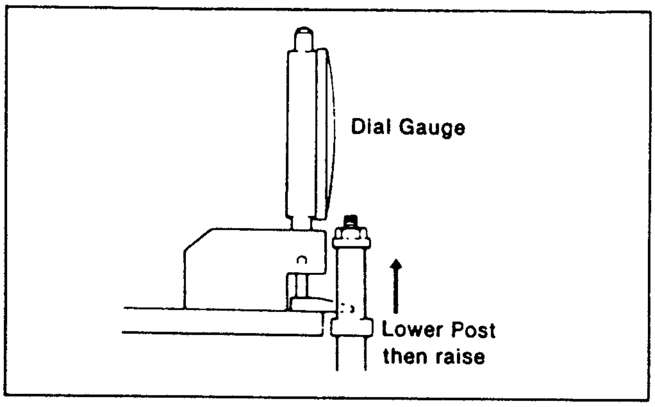


Fig. M2

6. Place the side of the scraper against the each post as shown in Figure M3, set the gauge to zero, then slowly raise the post until the lower tape guide just touches the bottom of the scraper. Use the gauge to determine the exact point at which the lower tape guide touches the scraper. (Fig. M3)

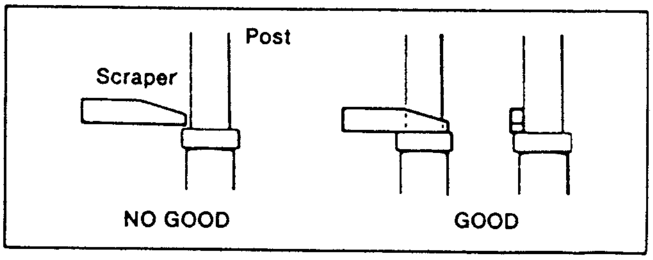


Fig. M3

3–2–2. CONFIRMATION OF THE TAPE TRANSPORT (TAPE GUIDE POSTS)

- Note:

1. The tape guide posts have been precisely adjusted at the factory. Therefore, normally do not change the height of P1, P4 and P5 posts. The following adjustment is required only when replacing the posts.
2. If curling is apparent proceed to the P4 post, wipe dirt from the pressure roller and capatan shaft using a soft cloth impregnated with Freon TF or cleaning liquid.
3. The adjustment of the post height is required only the one which has been replaced.

* Equipment Required
Post Adjustment Screwdriver..............VFK0329
Check Light..............................VFK0343
Nut Driver (Purchase locally)

1. To prevent the alignment tape from being damaged, use a normal cassette tape for this procedure.
   Playback the normal cassette tape and confirm that the tape travels without any curling at the edges of all the posts by using the check light. (Fig. M4 and Fig. M5)

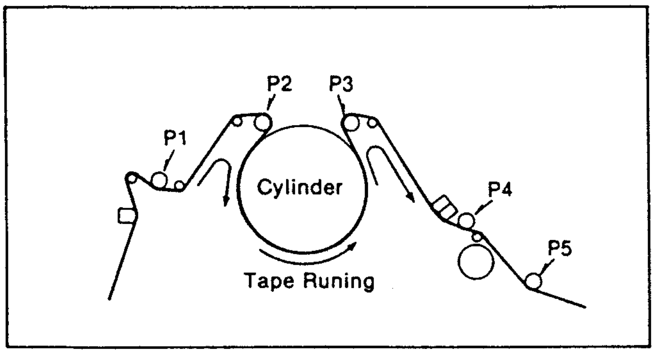


Fig. M4 Tape Transport Posts

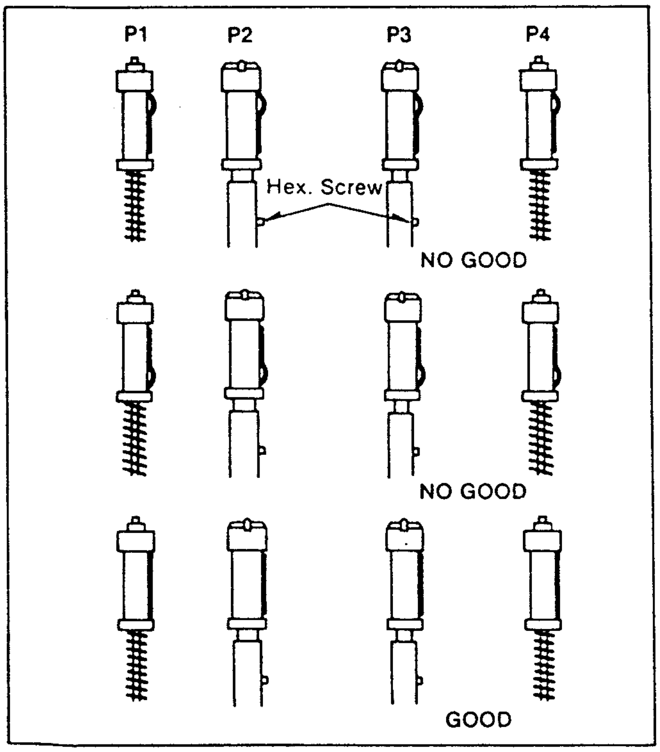


Fig. M5 Tape Guide Posts

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (Posts P2 and P3) or the nut driver (Posts P1 and P4). (Fig. M4 and M5)
3. After adjusting the P4 post, adjustment of the pull-out post (P5) is required.
   (Refer to "ADJUTMENT OF THE PULL-OUT POST HEIGHT".)
4. If the tape curling cannot be corrected by adjusting the tape guide posts, then adjustment of the A/C head tilt may be needed.

3-2-3. ADJUSTMENT OF THE PULL-OUT POST (P5 POST) HEIGHT

* Notes:
1. This adjustment should be performed only after adjusting tape guide post P4 as the height of the pull-out post is based on the height of post P4.

* Tools and Equipment Required:
Post Adjustment Plate....................VFK0191
Reel Table Height Gauge..................VFK0190
Check Light..............................VFK0343
Nut Driver (Purchase locally)

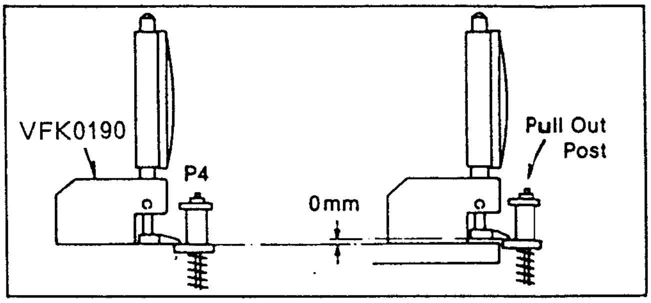


Fig. M6

1. Remove the cassette compartment by unscrewing 4 screws. Unit.
2. Place the Post Adjustment plate over the reel tables.
3. Place the Reel Table Height Gauge on the tape guide post P4, lower the scraper so that it touches the lower edges of P4, then set the gauge to zero ("0"). (Fig. M6)
4. Slightly lower the pull-out post by turning the nut on the post clockwise with the nut driver, and set the side of the scraper against the post as shown in Fig. M7.
5. Slowly turn the nut on the post counterclockwise until the gauge reads 0mm. (Fig. M6)
6. Confirm there is no tape curling at P4 post during reverse mode by using the check light.
   If tape curling occurs, back to step 8.

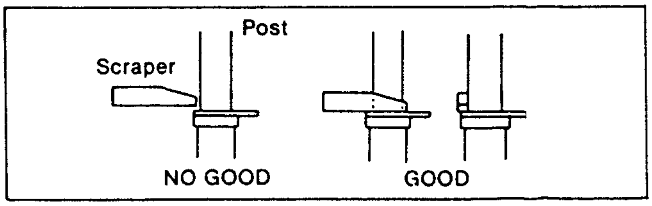


Fig. M7 Post Adjustment

3-2-4. CONFIRMATION OF THE A/C HEAD TILT

* Note:
This procedure should be performed after replacing the A/C head and pressure roller, and adjusting the height of the tape guide post (P4).
(Refer to "COARSE ADJUSTMENT OF THE TAPE GUIDE POST HEIGHTS".)

* Tools and Eqipment Required:
Hex. Wrench Set..........................VFK032
Nut Driver (purchase locally)

1. Play back the begnning portion of NV−E240 blank cassette tape and confirm that the tape runs between lower and upper limiters of the P4 post. If there is waving or frilling in the lower edge or top edge of the tape, correct the tilt of the A/C head by turning the Hex screw located behind the A/C head. (Fig. M8)

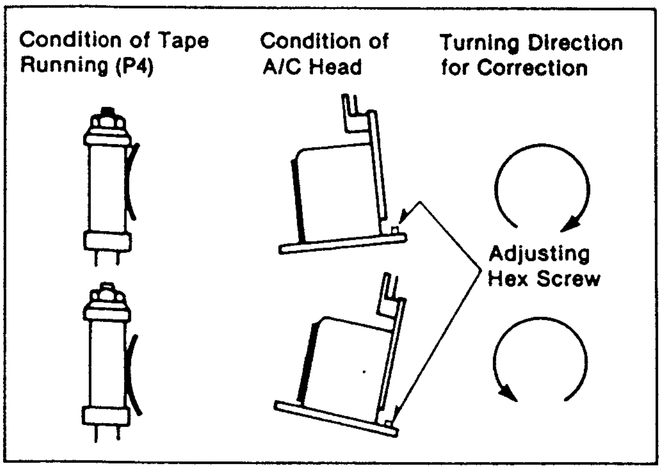

Condition of Tape Running (P4)
Condition of A/C Head
Turning Direction for Correction
Adjusting Hex Screw

Fig. M8

2. If the tape curling cannot be acomplished by adjusting the A/C head tilt, then readjustment of the height of the tape guide post (P4) may be needed.

* Notes:
1. The tape guide post (P4) has been precisely adjusted at the factory. Therefore, normally the tape guide post (P4) readjustment is not required to eliminate the tape curling.
2. After adjusting the A/C head tilt, the A/C head height adjustment is required.

3−2−5. CONFIRMATION OF THE ENVELOPE OUTPUT (LINEARITY)

* Note:
Before playing back the alignment tape, play back a normal cassette tape and confirm correct transport.
(Refer to "CONFIRMATION OF THE TAPE TRANSPRT".)

* Tools and Equipment Required:
Post Adjustment Screwdriver..........VFK0329
Alignment Tape..................VFM8180HMDH

1. Connect the scope to the output of the Head Amp (TP3001) on the Main C.B.A. and TP2001 on the same C.B.A. to EX +− Trigger of the scope.
2. Play back the monoscope portion of the alignment tape VFM8180HMDH.
3. Turn the Tracking Control VR and adjust for maximum RF envelope.
4. If the RF envelope appears like example "A" or "B" in Fig. M9, then adjustment of tape guide post (P2: Entrance) is necessary.
5. Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown "C" in Fig. M9. (See Fig. M12 also)

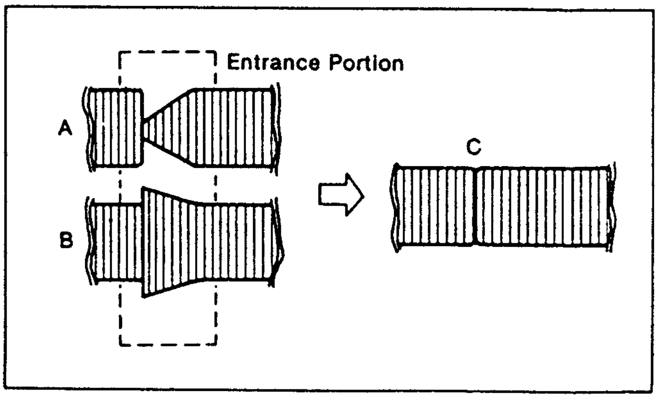


Fig. M9

6. If the RF envelope appears like example "D" or "E" in Fig. M10, then adjustment of the tape guide post (P3: Exit) is necessary.
7. Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in "F" in Fig. M10.

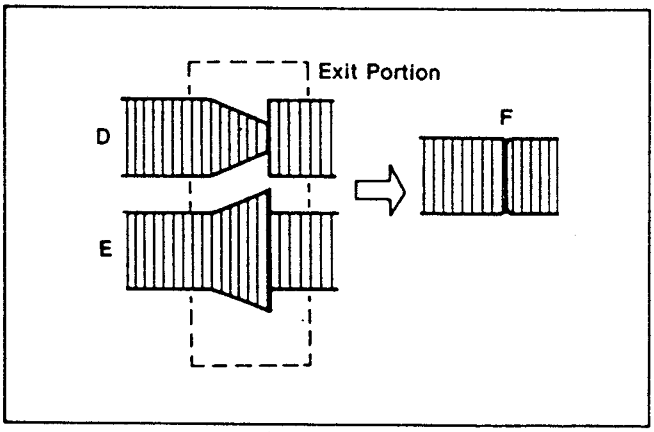


Fig. M10

8. Turn the Tracking VR from end to end. The variation of RF envelope should be nearly parallel as shown in Figure M11.
9. Turn the Tracking VR and adjust for maximum RF envelope. If the RF envelope does not meet these specs, V1/V 0.7, V2/V 0.8, then repeat stsps 1−9 of item 3−2−5. again. (Fig. M13)

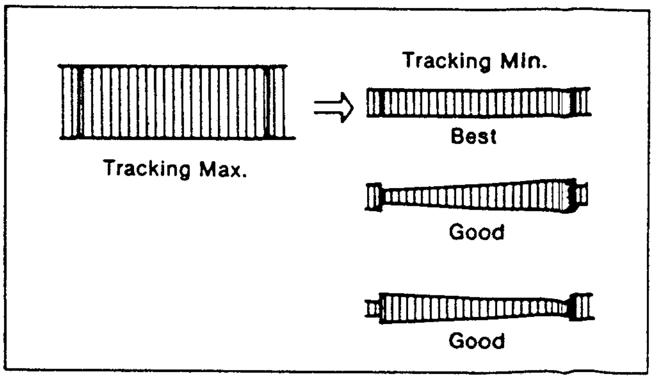


Fig. M11

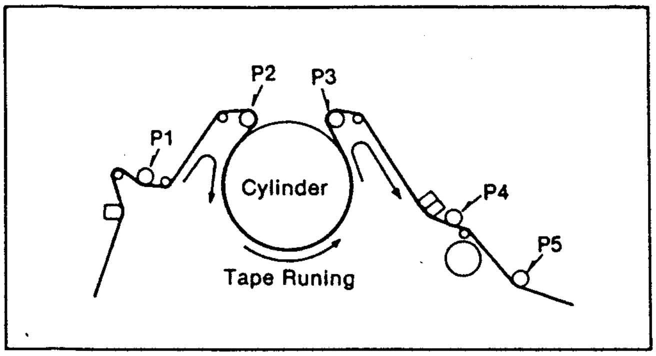


Fig. M12 Loading of post

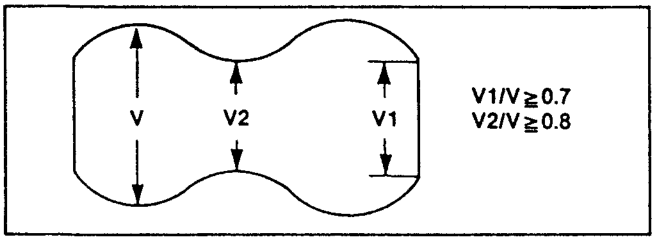


Fig. M13 Spec. of Envelope Figure

10. **Turn the Tracking VR from end to end again and then back to the detent (Fix) position.**
    At the detent position, the RF envelope waveform should be at maximum. If it is not at maximum then "ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION". is necessary.
    (Refer to "FINE ADJUSTMENT OF THE A/C HEAD HORIZONTAL POSITION".)

3-2-6. COARSE ADJUSTMENT OF THE A/C HEAD HEIGHT

* **Note:**
This procedure should be performed only when the A/C Head is replaced.

* **Tools and Equipment Required:**
Check Light........................VFK0343
Nut Driver (Purchase locally)

(1) **Looking at the lower edge of the control head within the tape running, ensure that lower edge of the tape runs along 0.25mm far from lower edge of the control head. (litte bit up position from lower edge of control head.) If it doesn't, slightly turn the nut (A) in either direction to correct clockwise to lower the head and counterclockwise to raise it.**

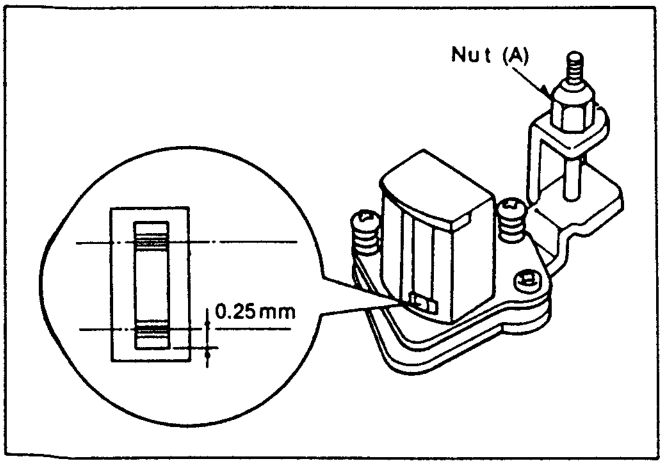


Fig. M14

3-2-7. ADJUSTMENT OF THE A/C HEAD HEIGHT AND AZIMUTH

* **Note:**
This procedure should be performed only when the A/C Head is replaced and posts hight are readjusted.

* Tools and Equipment Required:
Nut Driver (Purchase locally)
Alignment Tape..................VFM8180HMDH

1. Connect the scope to the audio output. (TP4001)
2. Play back the 2nd portion (Normal Audio 6kHz) of the alignment tape, VFM8180HMDH.
3. Adjust the screw (B) so that the audio output level at TP4001 becomes maximum. (Fig. M15)

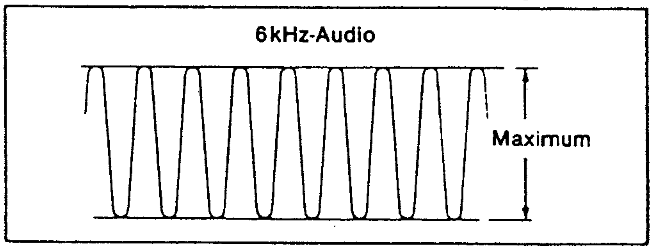


Fig. M15

4. **Then adjust the nut (A) so that the audio output level (at TP4001) maximum.**

3-2-8. ADJUSTMENT OF A/C HEAD HORIZONTAL POSITION

Note:
This procedure should be performed only when the A/C head is replaced , and after performing the tape interchangeability adjustment

* Tools and Equipment Required:
H. Position Adj. Fixture.............VFK0328
Alignment Tape..................VFM8180HMDH

1. Set the Tracking Control VR to the center detent (fixed) position.
2. Connect the scope CH1 to TP3001 on the Main C.B.A., and TP4001 on the Audio C.B.A. to Ext-trigger the scope.
3. Play back the Monoscope patern of the alignment tape (VFM8180HMDH).
4. Adjust the adjust screw so that the RF envelope output level becomes maximum at the detent position (Fig. M16,M17).
5. Turn the Tracking VR from end to end and then back to the detent position.
   Confirm that the RF envelope output level is maximized at the detent position. (Fig. M11)

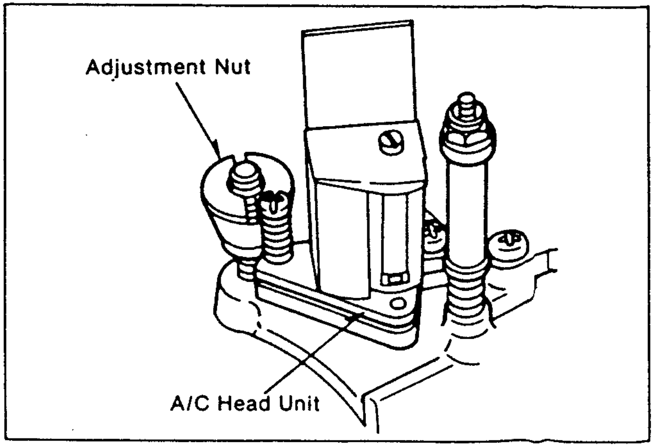


Fig. M16

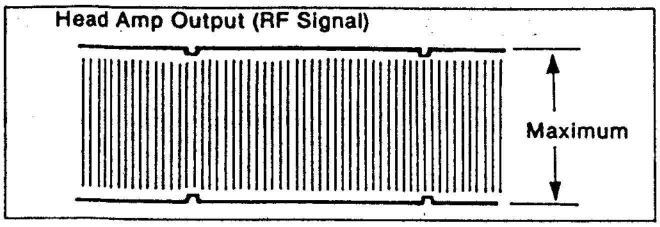

Head Amp Output (RF Signal)
Maximum

Fig. M17

4. OTHER ADJUSTMENT PROCEDURES

4-1. CONFIRMATION OF BRAKE TORQUE

* Equipment Required:
  Dial Torque Gauge................VFK0133
  Adaptor for Gauge................VFK0134
* Specification:--------see spec table (Fig. M19)

(1) Remove the cassette compertment by unscrewing 4 screws.
(2) Attach the adaptor to the torque gauge and place the unit in STOP mode.
(3) Place the torque on the reel table. The weight of gauge should not rest on the reel table.

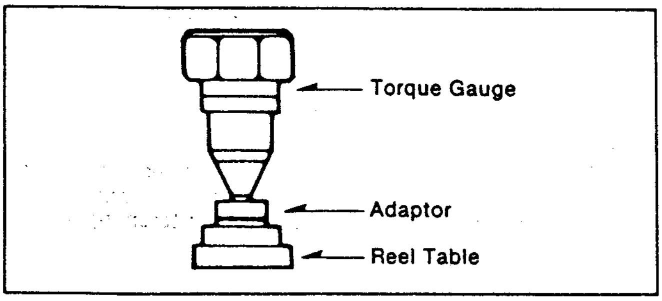
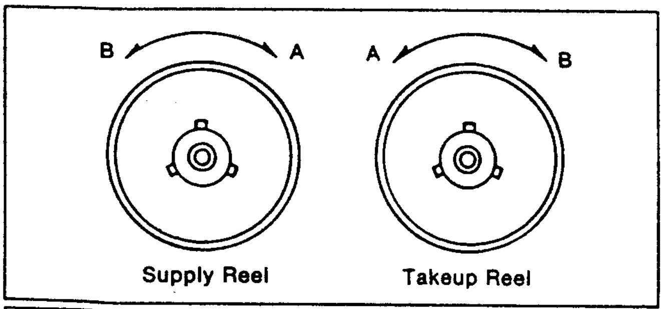

Torque Gauge
Adaptor
Reel Table

Fig. M18

(4) Turn torque gauge in either direction indicated in the Fig. M19, and read the gauge when the brake begins slipping.

Note:
If proper brake torque can not be optained, check the both take-up and supply clutch gear.


B
A
A
B
Supply Reel
Takeup Reel

	A	B
Takeup	28+-8g-cm	28+-8g-cm
Supply	28+-8g-cm	28+-8g-cm

Fig. M19

4-2. TENSION POST POSITION ADJUSTMENT

* Specification :----------2.4mm~2.9mm

(1) Remove the Cassette Up unit by unscrewing 4 screws. (Refer to the disassembly procedures titled in Removal of the Cassette Up Unit).
Place the unit in Play mode by rotating Drive Gear (A) in clockwise shown below.

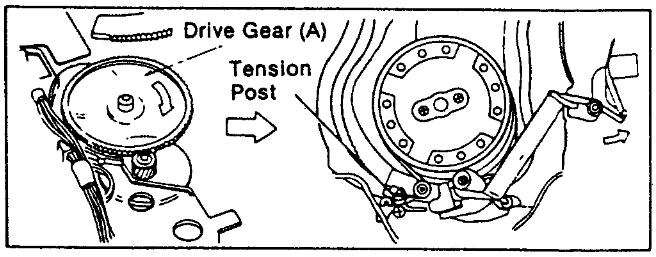

Drive Gear (A)
Tension Post

Fig. M20

Note:
In this case, make sure that the power is not applied.

(2) Loosen the screw (A) a little bit and adjust the Tension Post adjustment plate so that the "Distance (A)" shown below becomes just meet in the specification (2.4m~2.9mm).
(3) Tighten the screw (A) to fix it.

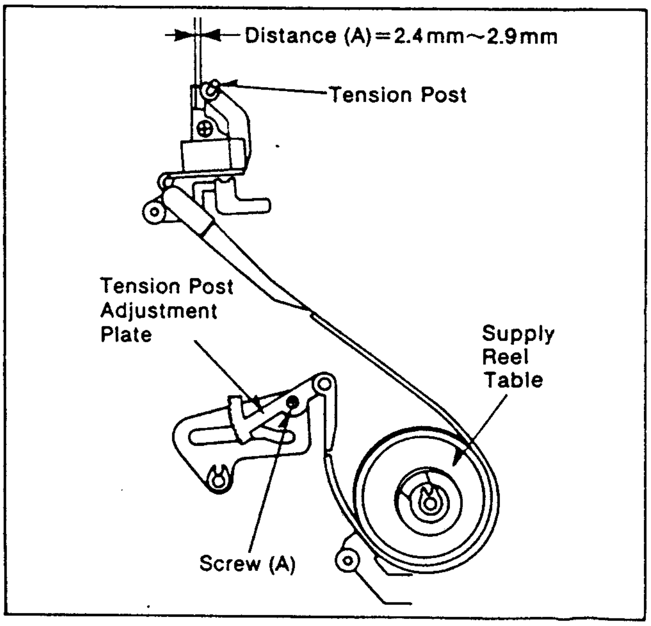

Distance (A)=2.4mm~2.9mm
Tension Post
Tension Post Adjustment Plate
Supply Reel Table
Screw (A)

Fig. M21

4-3. BACK TENSION ADJUSTMENT

* Equipment Required:
  Back Tension Meter.......................VFK0132
  VHS Cassette Tape (120min.)
* Specificcation:-----------------------19~23g

1. Playback the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10~20 seconds)

2. Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Figure M22.

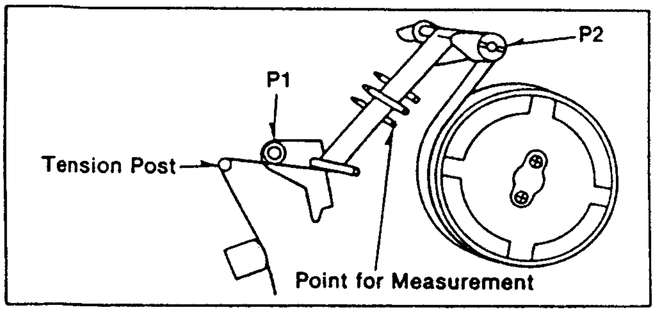


Fig. M22 **Measurement of Back Tension**

Note:

1. While measuring, make sure that the three probes of the meter are all in good contact with the tape.
2. As the tension meter is very sensitive, we recommend taking 3 separate readings.
3. If it is out of specification, change the spring notch as shown in Figure M23

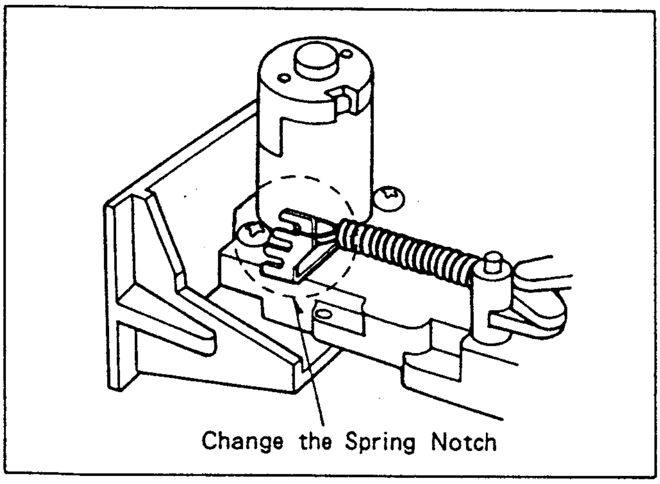


Fig. M23

4-4. REEL TABLES HEIGHT ADJUSTMENT

- Equipment Required:
  Post Adjustment Plate............VFK0191
  Reel Table Height Gauge..........VFK0190
- Specification————————0~−0.15mm

Note:
Cut—out on Post Adjustment Plate is reference of reel table height and their height is measured based on this reference.

1. Place the post adjustment plate on the reels, and put the Gauge on the plate. Set the gauge to zero "0" with the foot scraper of the gauge touching the cut—out portion of the plate.

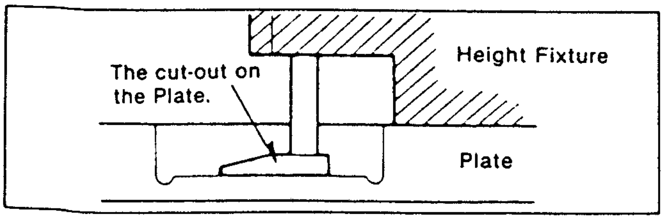


Fig.M24

2. Then measure the height of reel table and confirm the difference just performed in former step as shown below. Do the same way for the other reel table.

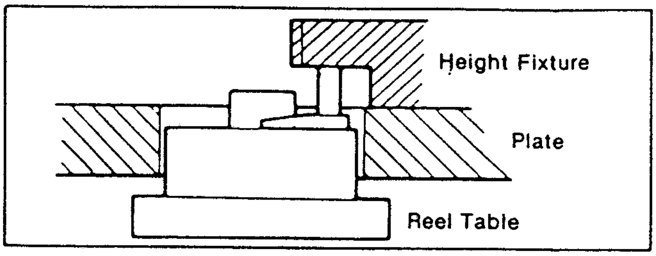


Fig. M25

3. If a height difference in readings between the cut—out portion of plate and reel tables is not 0~−0.15mm (higher or lower), adjust the height of the reel to obtain specified height.
4. For adjustment add or reduce a washer.

4-5. ADJUSTMENT OF FG HEAD GAP

- Specification:————————0.17~0.18mm

(1). Slightly loosen the 2 screws.
(2). Put the paper which is used for cover page of this volume into the gap between F.G.Head and Capstan rotor. (The thickness of the cover page is approx 0.17mm)
(3). After adjustment, tighten 2 screws.

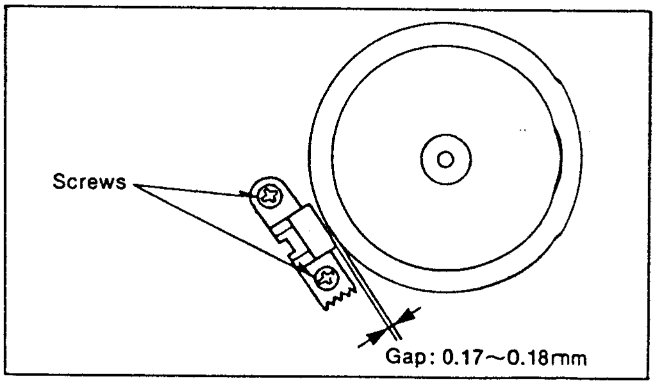


Fig. M26

Note:
Do not touch the surface of rotor and keep any magnetizable material away.

4-6. ASSEMBLY ADJUSTMENT PROCEDURES OF MECHANISM

The mechanism of this model is mostly engaged to the System Control Circuit, through the mode select switch.
Therefore the relation between the mode select switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on.
If these parts are fixed in properly, the unit will be unloaded or compulsorily stopped.
And it will result being damaged at any mechanical or electrical parts.

4–6–1. ASSEMBLY PROCEDURES OF LOADING RINGS AND LOADING GEARS

(1). Install a Loading–Ring T (1) unit and a Loading Gear (B) so that both triangle marks meet each other as shown below.

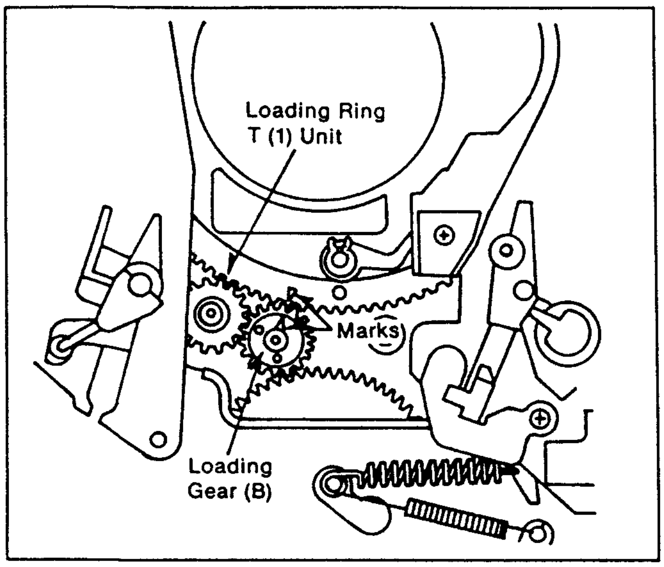

Loading Ring
T (1) Unit
Marks
Loading
Gear (B)

Fig. M27

(2). Install a Loading Gear (A) and next fix a Loading Ring S (1) Unit so that the holes of Loading–Ring S(1) Unit and T(1) Unit meet each other as shown below.

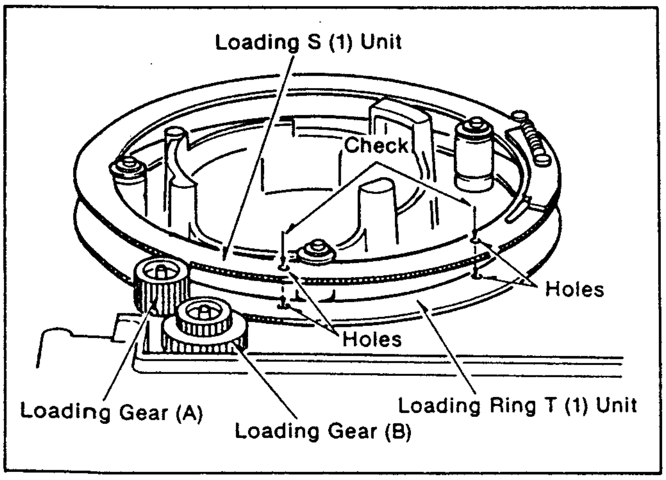

Loading S (1) Unit
Check
Holes
Holes
Loading Gear (A)
Loading Gear (B)
Loading Ring T (1) Unit

Fig. M28

Note:
Pay attention that the washers are remaining under the loading gears or any other parts.

4–6–2. ASSEMBLY PROCEDURES OF TAKE–UP LOADING GUIDE AND TAKE–UP LOADING POSTS UNIT

(1). Install Loading Guide T Unit and Take–up Post Stopper.
In that time, the small projection of a Loading Link T Unit must be inserted into a gap of Loading Guide T Unit.

(2). Fix a Take–up side Loading Post Unit holding the small projection of the Loading Link T Unit and install a T Shaft Holder Unit.

4–6–3. ASSEMBLY PROCEDURES OF SUPPLY LOADING GUIDES AND SUPPLY LOADING POST UNIT

(1). Install 2 Supply Loading Guides screwing 4 screws.

(2). Slide a Supply Loading Post Unit into a gap between the Loading Guide S1 and S2 hooking a Connection Rod to a Connection Tie Unit as shown below.

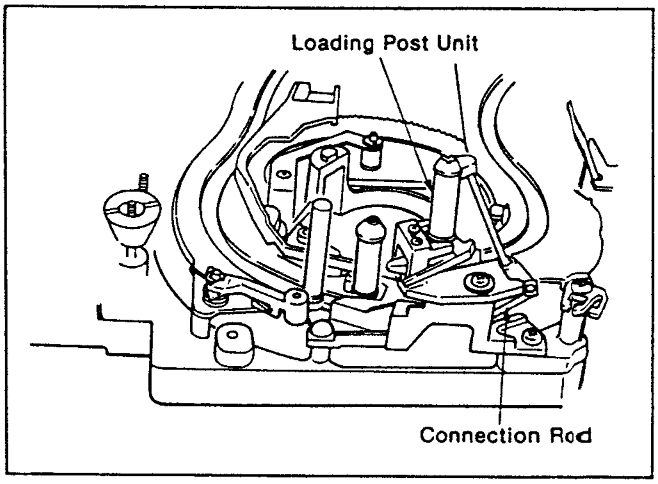

Loading Post Unit
Connection Rod

Fig. M29

(3). Set the Supply Loading Post Unit into unloading position by turning a intermediate pully gear as shown below.

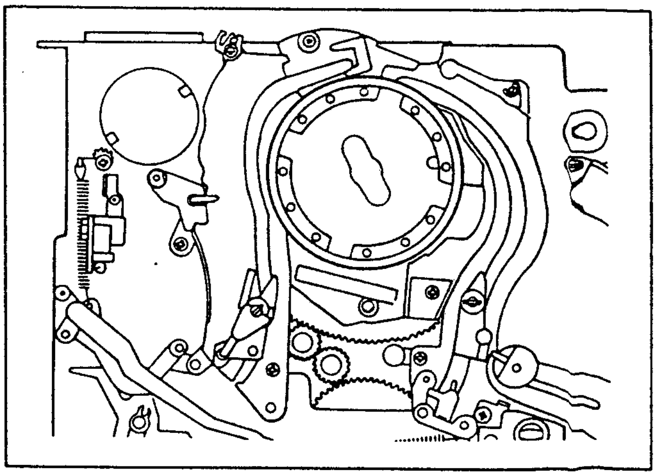


Fig. M30

(4). Install a V Stopper Base and a Supply Post Stopper.

4–6–4. ASSEMBLY PROCEDURES OF MAIN ROD.

(1). Place a Main Rod inserting 3 Thrust Washers and then insert 3 washers.
After that, fix them using 2 retaining rings as shown below.

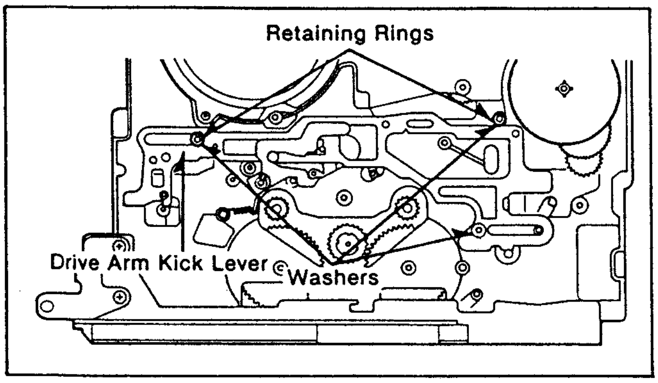


Fig. M31

(2). Install a Drive Arm Kick Lever hooking a Drive Arm kick Lever Spring and fix it using ring.

4–6–5. ASSEMBLY PROCEDURES OF CAM GEAR AND SECTOR

(1). Make sure that the hole on a Main Rod just should coincide with the hole on chassis as shown below and install a Cam Gear should coincide with he hole between a Cam Gear and the chassis. Then install a retaining ring.

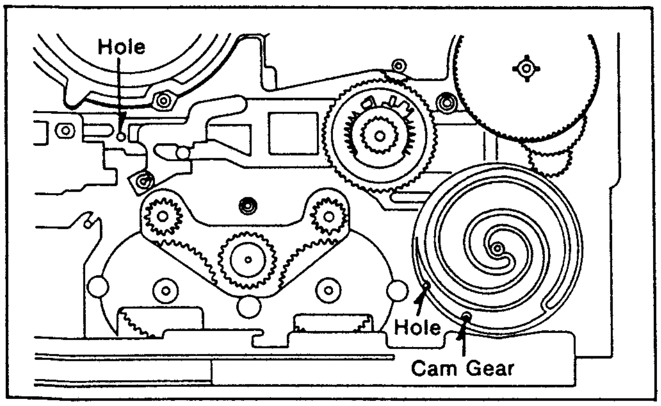


Fig. M32

(2). Install a Loading Gear (C) keeping the relation as shown below.

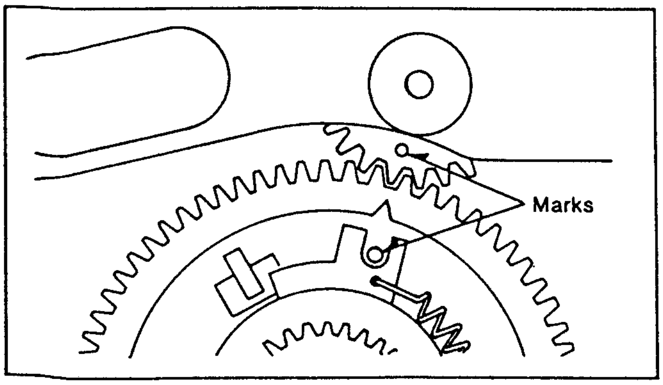


Fig. M33

(3). Install a Sector Gear as shown below.

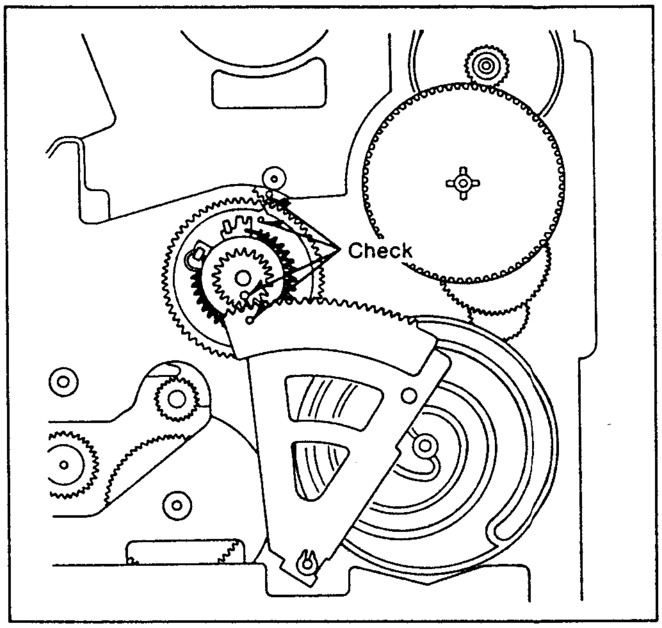


Fig. M34

(4). Fix a SG Limiter by 2 retaining rings.

4–6–6. ASSEMBLY PROCEDURES OF MODE SWITCH

(1). Perform this procedures after confirming the complete setting of mechanical parts.
First of all, confirm that the hole on a Main Rod is meeting with a hole on a chassis.

(2). Move the moving contact of a Mode Select Switch into Stop position as shown below.

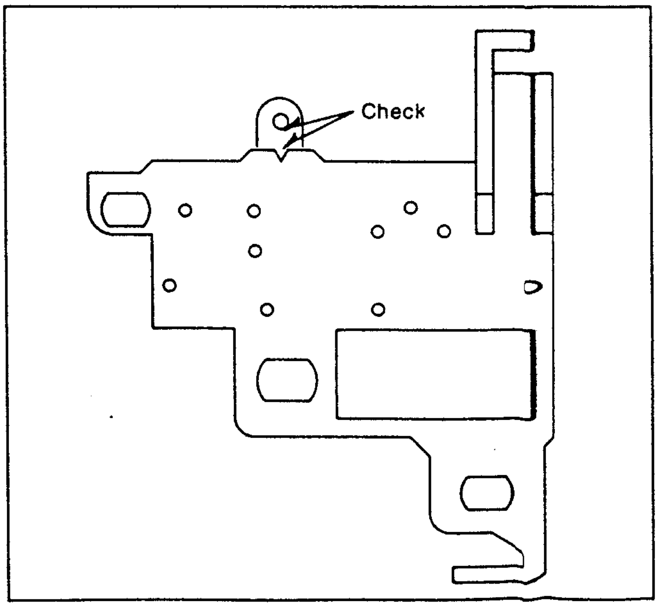


Fig. M35

(3). Install the Mode Select Switch keeping these relation written in item (1) and (2) by screwing 2 screw.

2-4. ELECTRICAL ADJUSTMENT PROCEDURES

2-4-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section of S-VHS Movie.

1. Oscilloscope
   Dual Trace, 25MHz, 2mV/DIV,
   10:1 Probe
   1:1 Probe
2. Digital Volt Meter or VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 footcandles (1400lux), on the chart surface 3200 degrees K.
9. Reflection Chart
   *Logarithmic Gray Scale Chart
   (Part No.:YWV2310RB99)
   *Colour Chip Chart
   (Part No.:YWV2100RB98)
   *Ball Chart
   (Part No.:YWV2100RB03)
   *Hunting Chart
   (Included in this Service Manual)
   *White Chart (Card)
   (The white paper is available as a white chart)
   *J Chart
   (Part No.:YWV2100RB3)
   *B/W Chart
   (Included in this Service Manual)
   *Gray-White Chart
   (Included in this Service Manual)
10. Plastic Tip Driver
11. Camera Unit Holder
    (Part No.:VFK0382)
12. Camera Holder Arm
    (Part No.:VFK0431)

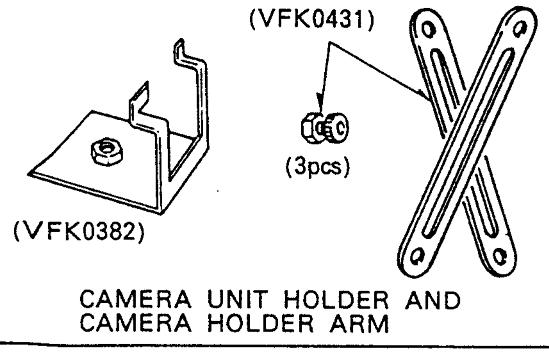

(VFK0431)
(3pcs)
(VFK0382)
CAMERA UNIT HOLDER AND
CAMERA HOLDER ARM

Fig. C1

13. Colour temperature conversion filter
    *C12 Filter(Part NO.:VFK0374)
    *C2 Filter(Part NO.:VFK0375)
14. Camera Extension Cables
    (Part No.:VFK0380, VFK0430)

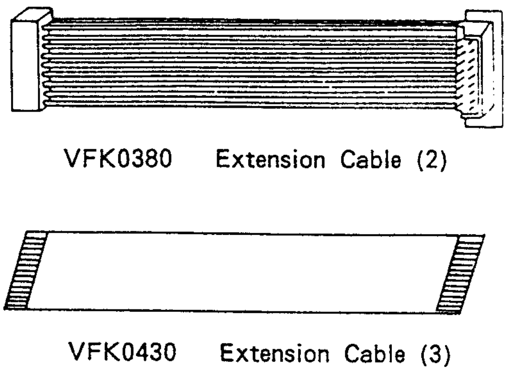

VFK0380 Extension Cable (2)
VFK0430 Extension Cable (3)

Fig. C2

PREPARATION

1) Remove the Side Case (L) and Side Case (R) from the Unit.
   (Refer to the Disassembly Section.)
2) Mount the Camera Unit on the tripod using the Camera Unit Holder (VFK0382) and Camera Holder Arm (VFK0431).
3) Connect the Camera Unit, Video Recorder Unit, AC Adapter,Camera Operation Unit and Colour Monitor TV as shown in Fig. C3.
4) Remove the Flexible Cable between FP301 and P3003
   And re-connect the Camera Extension Cable (3) (VFK0430) to these connectors.
5) Connect the Camera Operation C.B.A. by connecting P001.
6) Connect the 1 pin connector which connect the reference voltage between P301-4 and R006(Iris VR side).

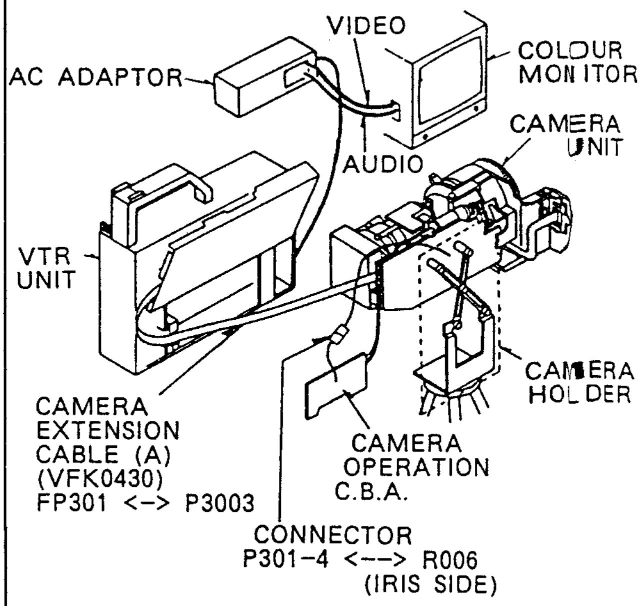

VIDEO
AC ADAPTOR
COLOUR MONITOR
CAMERA UNIT
AUDIO
VTR UNIT
CAMERA HOLDER
CAMERA EXTENSION CABLE (A) (VFK0430) FP301 <-> P3003
CAMERA OPERATION C.B.A.
CONNECTOR P301-4 <--> R006 (IRIS SIDE)

Fig. C3

Note:

1. Do not forget to connect P001 on Camera Operation C.B.A. and small connector (between P301-4 and R006: Iris VR side). If these connectors are not connected camera does not work correctly.
2. Set the RED/BLUE Balance VR to centre fix position.
3. Set the IRIS VR to centre Fix position.
4. Set the White Balance Switch to INDOOR position during adjustment procedures.
5. Service work for the Camera Unit must be performed in a dust-free location to maintain lens cleanliness.
6. To achieve the best adjustment results, warm up the camera before adjusting.
7. FOR TRIGGER (Refer to Fig. C4-1) To trigger the scope, solder jumper wires to the following pins that are used as test points. (H-Rate-Pin12 of B302 and V-Rate-Pin13 of B302). Remove the jumper wires after completing the adjustment Procedure (s).
8. If you use the reflection chart, ensure the colour temperature of the light source used is 3200 degrees K.

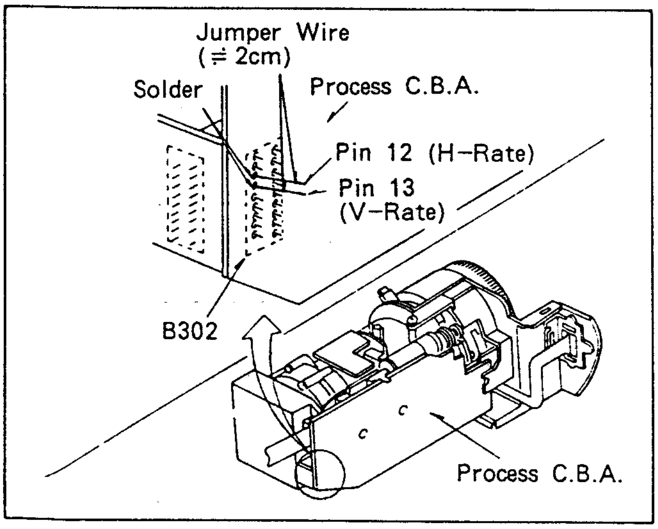


Fig. C4-1

7). HOW TO USE CAMERA HOLDER ARM (VFK0431)

This Camera Holder Arm which is adjustable the span must be mounted to VFK0382 and it can be used with VFK0432 for camera adjustment or checking.

(A) --- VFK0432 Holder Spacer (2pcs.)
(B) --- VFK0431 Camera Holder Arm
(C) --- XSN26+18 Screw (2pcs.)
(D) --- VFK0382 Camera Holder

(1) Fix the Holder Arm (4) and (5) temporarily by screw (1) as shown in Fig. C4-2.
(2) Mount the Camera Holder Arm (B) to the Camera Holder (D) by screws (2) and (3) as shown in Fig. C4-3.
(3) Tighten the screws (C) with the Holder Spacers (A) as shown in Fig. C4-2.

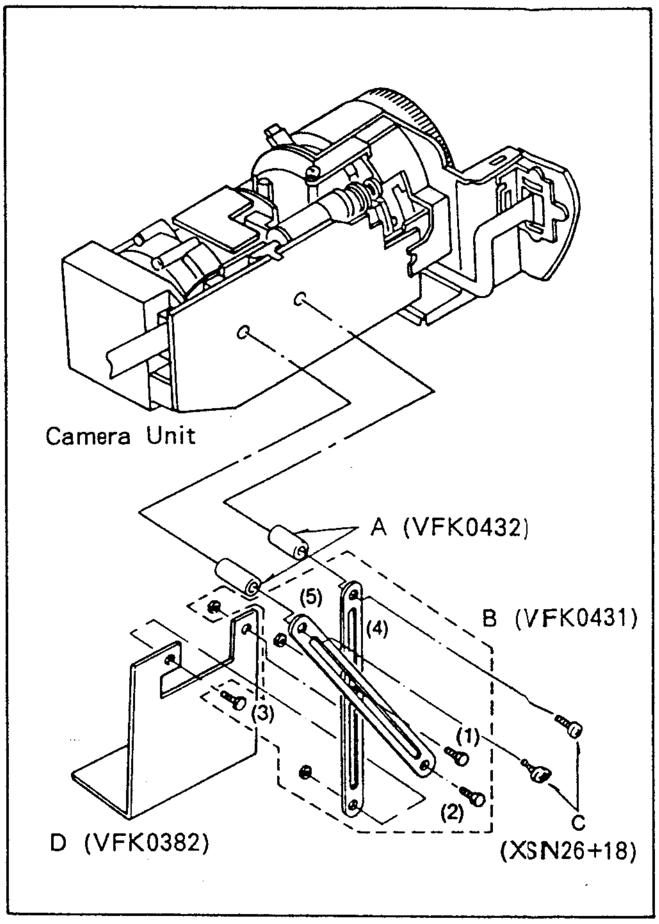


Fig. C4-2

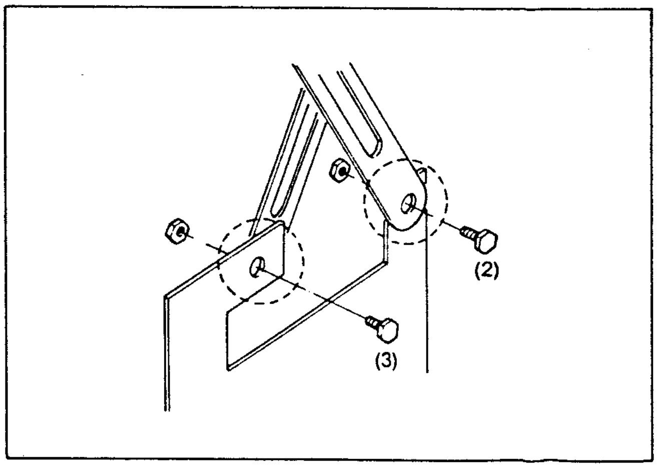


Fig. C4-3

8). When servicing the Camera Section, connection of 18 pin Extension Cable (2) (VFK0380) is necessary as shown in Fig. C4-4.

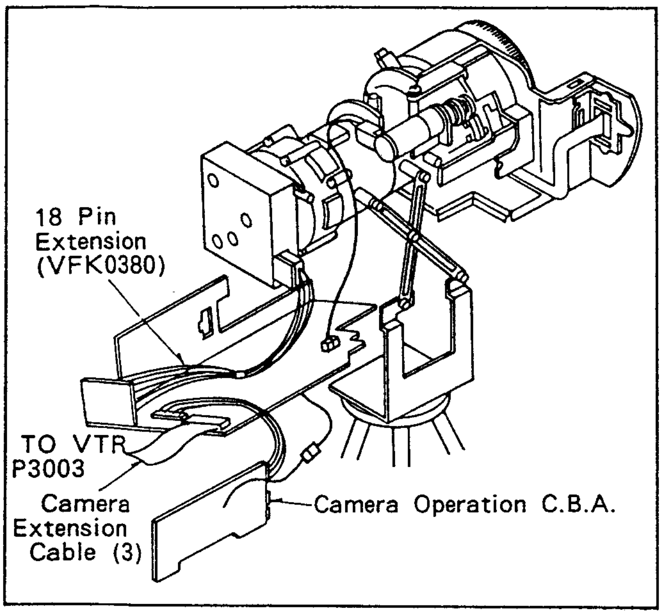
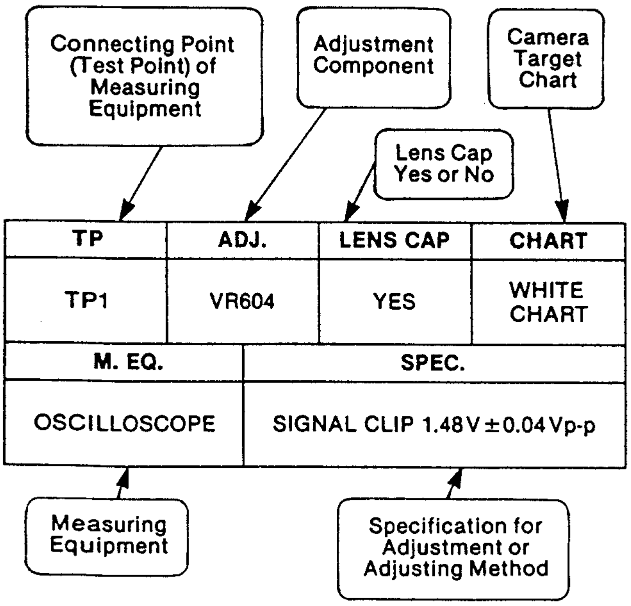

18 Pin
Extension
(VFK0380)
TO VTR
P3003
Camera
Extension
Cable (3)
Camera Operation C.B.A.

Fig. C4-4

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point
(Test Point) of
Measuring
Equipment
Adjustment
Component
Camera
Target
Chart
Lens Cap
Yes or No
Measuring
Equipment
Specification for
Adjustment or
Adjusting Method

TP	ADJ.	LENS CAP	CHART
TP1	VR604	YES	WHITE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	SIGNAL CLIP 1.48V±0.04Vp-p

Note: If ☒ appears in any block, this means it is not used or not important.

Fig. C5-1

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT
2. PLL FREQUENCY ADJUSTMENT
3. OR BIAS ADJUSTMENT
4. V-SUB ADJUSTMENT
5. CCD OUTPUT ADJUSTMENT

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT
7. IRIS SPEED ADJUSTMENT
8. ALC ADJUSTMENT
9. AGC ADJUSTMENT
10. YH LEVEL ADJUSTMENT
11. CARRIER BALANCE AND BLACK LEVEL ADJUSTMENT
12. INDOOR WHITE BALANCE ADJUSTMENT
13. OUTDOOR WHITE BALANCE ADJUSTMENT
14. AWB OFFSET ADJUSTMENT
15. COLOUR PHASE AND R-Y/B-Y GAIN ADJUSTMENT
16. HIGH INTENSITY SUPPRESS ADJUSTMENT
17. LOW LIGHT INDICATION ADJUSTMENT
18. AWT MODE ADJUSTMENT

18-1. AWT MODE (OFFSET) ADJUSTMENT

18-2. AWT MODE (GAIN) ADJUSTMENT

18-3. HIGH COLOUR TEMPERATURE ADJUSTMENT

AUTO FOCUS SECTION

19. AF GATE ADJUSTMENT
20. BIMOLF GAIN CONTROL ADJUSTMENT
21. AF AMP BIAS GAIN ADJUSTMENT
22. AF VH FREQUENCY ADJUSTMENT

Fig. C5-2

CCD DRIVE SECTION

1. BACK FOCUS ADJUSTMENT

(1) Aim the Camera at the Hunting Chart in 3m distance and zoom all the way in (Fully tele position.)
(2) Focus the lens on the object.
(3) Adjust the relay lens adjustment point as shown in Fig. C6.

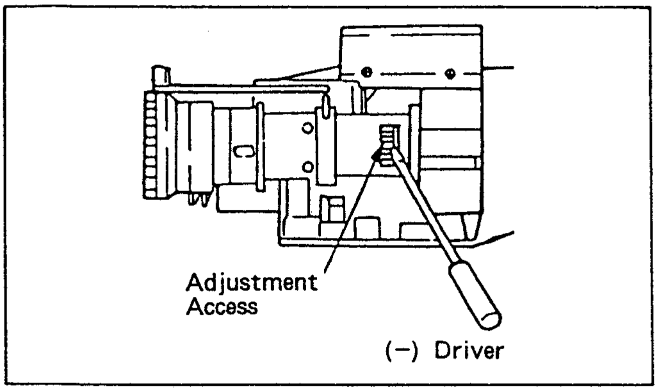


Fig. C6

(4) Zoom all the way back and adjust the back focus pitch so that the sharpest focus is obtained.
(5) Repeat the procedure as follows, zoom in, focus, zoom out and adjust until the best focus is obtained over the entire Zoom range.

2. PLL FREQUENCY ADJUSTMENT

(1) Remove the Sensor Shield Case by removing its 4 Screws.

TP	ADJ.	LENS CAP	CHART
PIN 10 OF B201	C206		
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		12.875MHz +– 15Hz	

Note:
B201, C206 : Sensor C.B.A.

3. OR BIAS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR203	NO	J CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		WAVEFORM "A" IS MAXIMIZED	

Note:
VR203,VR201,TP201:ON SENSOR C.B.A.
TP10,TP11:ON PROCESS C.B.A.

(1) Set the zoom ring to fully TELE position. Aim the camera at J chart and connect the jumper wire between TP10 and TP11.
(2) Pre-adjust VR201 (V-SUB VR) so that blooming or smear (vertical line) is appeared on TV screen.
(3) Connect the oscilloscope to TP201.
(4) Adjust the VR203 so that level "A" is maximized and any signal does not appear at point "B".

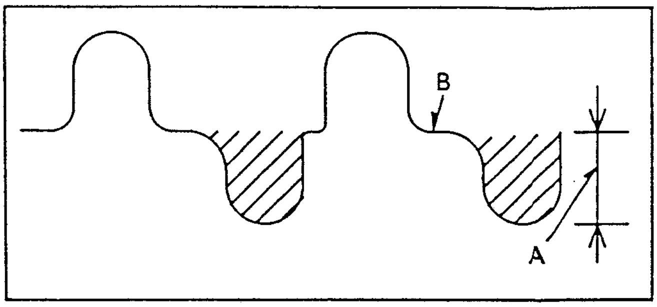


Fig.C7

4. V-SUB ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR201	NO	HALOGEN LAMP
M. EQ.		**SPEC.**	
MONITOR TV		NO BLOOMING	

(1) Zoom all the way in (Fully tele position) and aim the camera at the Halogen Lamp (3200 degrees K) as shown in Fig. C8-1.

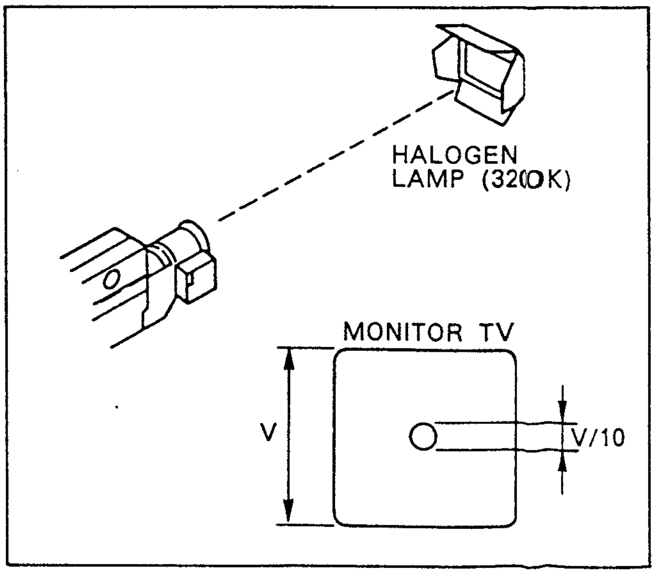


Fig. C8-1

(2) Set the High Speed Shutter SW to"OFF" portion.
(3) Turn IRIS volume to fully open.
(4) Adjust the Blooming Control (VR201) so that the monitored picture does not contain the Blooming.

(5) High Speed Shutter "ON" and "OFF" both mode, confirm that the monitored picture does not contain the Blooming even if the camera moves as shown in Fig. C8-2.

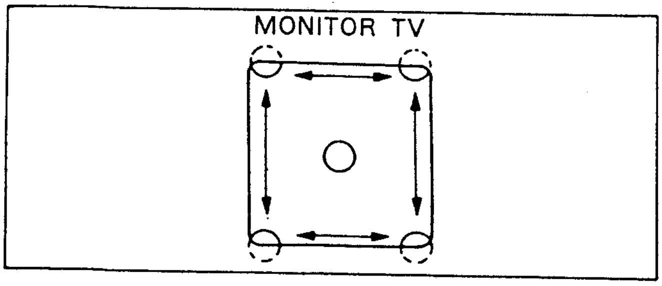


Fig. C8-2

5. CCD OUTPUT ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP201	VR202	NO	J CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	200mV +- 10mV		

Note1:
TP201, VR202 : Sensor C.B.A.

Note2:
Prior to the above adjustment, adjust the iris control Volume so that the level at TP1 is 300 +- 10mV by observing waveform on the oscilloscope.

(1) Aim the camera at the J chart and focus the lens on the object.
(2) Connect the oscilloscope to TP201.
(3) Adjust VR202 so that the signal level is 200 +- 10mVp-p as shown in Fig. C9.

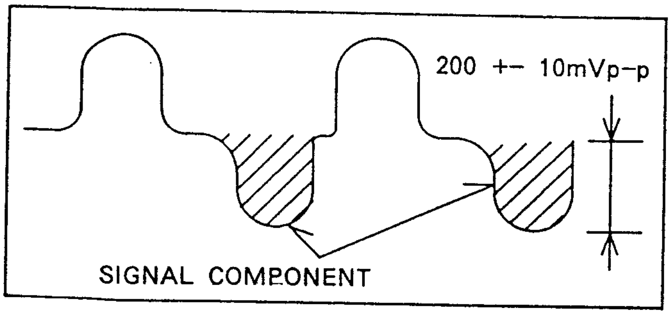


Fig. C9

PROCESS SECTION

6. PEDESTAL LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP2	VR305	YES	
M. EQ.	**SPEC.**		
OSCILLOSCOPE	SIGNAL LEVEL EQUALS THE BLANKING (BLANK) LEVEL.		

Note:
TP2, VR305 : Process C.B.A.
Set the Gain Switch for up side.

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the scope to TP2 and trigger with Pin 12 of B302 (H-Rate).
(3) Adjust the Pedestal Level Control (VR305) so that the signal level equals the BLK level as shown in Fig. C10.

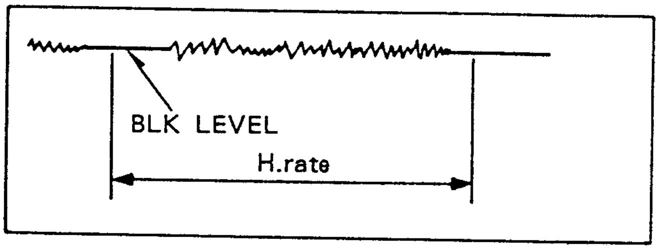


Fig. C10

7. IRIS SPEED ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP13	VR326	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	JUST LOW LEVEL (LESS THAN 0.5V)		

Note:
TP13,TP14,VR326: Process C.B.A.

(1) Aim the camera at the Gray scale chart.
(2) Set the Iris VR for centre Fix position .
(3) Connect the resistor (56 kohm) between TP14 and GND.
(4) Connect the oscilloscope to TP13.
(5) Adjust the VR326 so that DC level become low level (less than 0.5V) where the just before voltage change from low level to high level.
(6) Remove the resistor (56kohm) from TP14 and GND.
(7) Confirm that voltage at TP13 is high (more than 3V) when Iris VR is turned to "CLOSE" side.
Confirm that voltage at TP13 is low (less than 0.5V) when Iris VR is turned to "OPEN" side.

8. ALC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP1	VR301	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +– 0.02Vp-p	

Note:
TP1, VR301 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP1 and trigger with Pin 12 of B302 (H–Rate).
(3) Adjust the Camera Unit to obtain 40usec as shown in Fig. C11.
(4) Adjust the Auto Iris Control (VR301) so that the signal level is 0.30V +– 0.02Vp–p.

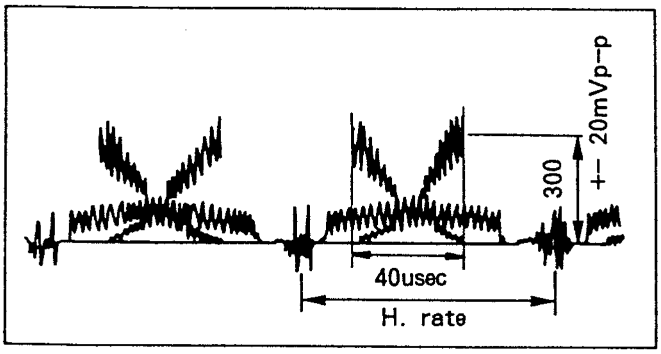


Fig. C11

9. AGC ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP2	VR304	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
OSCILLOSCOPE		0.30V +– 0.02Vp–p	

Note1:
TP2, VR304 : Process C.B.A.

Note2:
The Gain SW should be set to "S.T.D." position

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to TP2 and trigger with Pin 12 of B302 (H–Rate).
(3) Adjust the Camera Unit to obtain 40usec as shown in Fig. C12.
(4) Adjust the AGC Control (VR304) so that the signal level is 0.30V +– 0.02Vp–p.

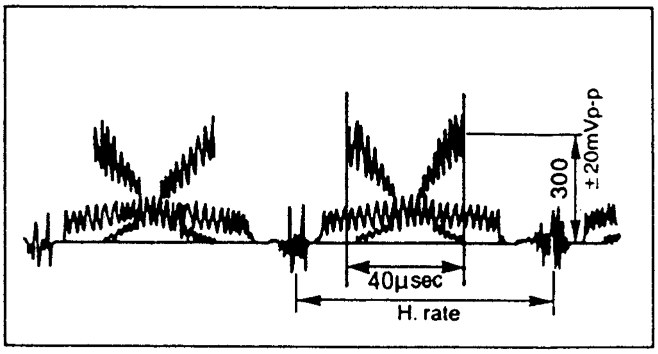


Fig. C12

10. YH LEVEL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
PIN 7 OF FP 301	VR302	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	B/A = 2.33 +– 0.15		

Note:
VR302, FP301 : Process C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Connect the scope to Pin7 of FP301. (Refer to Fig. C14)
(3) Adjust the YH Level Control (VR302) so that the signal level "B/A" is 2.33 +– 0.15 as shown in Fig. C13.
(4) Disconnect the jumper wire.

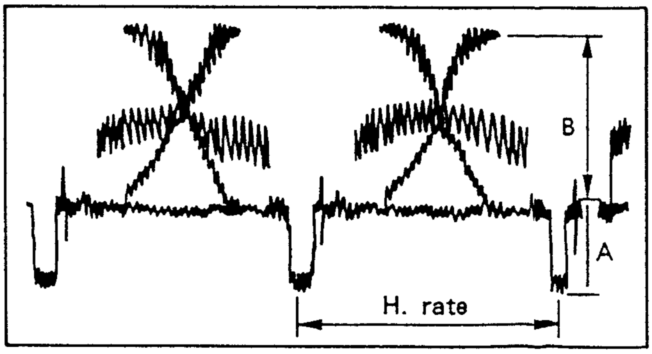


Fig. C13

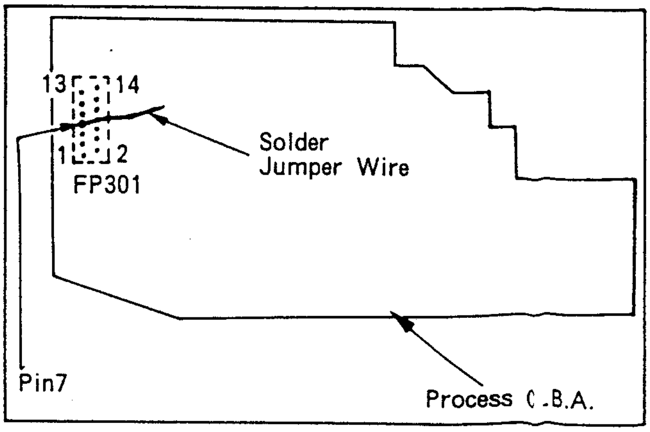


Fig. C14

11. CARRIER BALANCE AND BLACK PEDESTAL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR308 VR318 VR319	YES	

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR308, VR319, VR318 : Process C.B.A.

WITH VECTORSCOPE

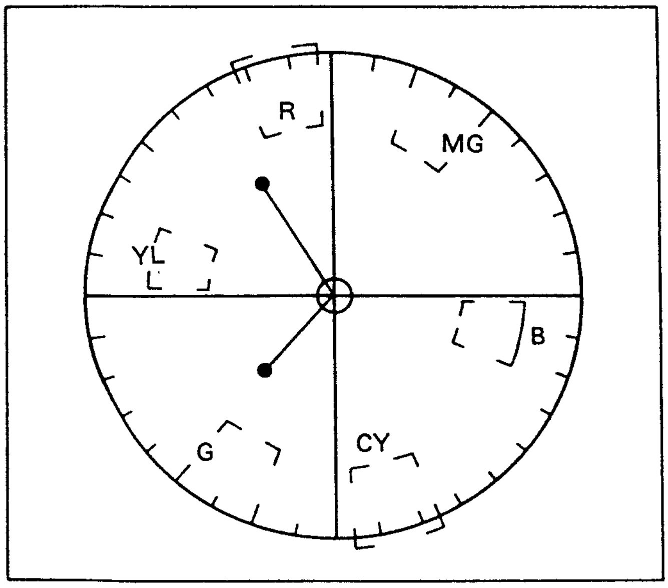


Fig. C15

(1) Cover the Camera Lens with the Lens Cap.
(2) Connect the jumper wire among TP4, TP5, and TP6 on process C.B.A.
(3) Adjust the Black Pedestal Control (VR308) so that the colour vectors collect at the centre of screen on the vectorscope.
(4) Adjust the Carrier Balance Controls (VR318 and VR319) so that the colour vectors collect at the centre of of screen on the vectorscope.
(5) Disconnect the jumper wire.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR318 and VR319 so that the waveform is minimized.

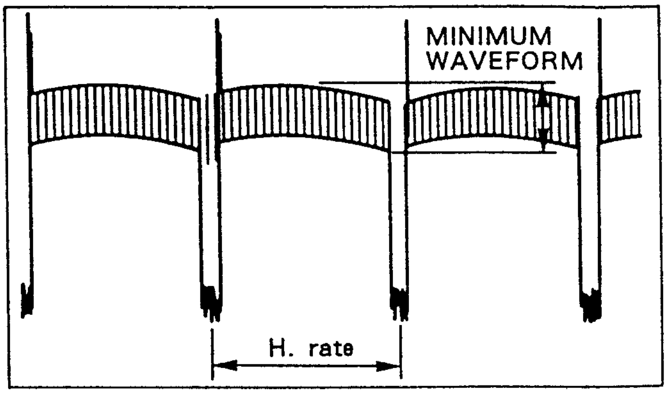


Fig. C16

12. INDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR322 VR323	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR322, VR323 : Process C.B.A.

WITH VECTORSCOPE
(1) Set the White Balance Switch to "INDOOR" side.
(2) Connect the jumper wire among TP4, TP5 and TP6 on process C.B.A.
(3) Aim the camera at the White Chart.
(4) Supply the video signal to the vectorscope.
(5) Adjust the White Balance Controls (VR322 and VR323) so that the colour vectors are collected at the centre of screen on the vectorscope as shown in Fig. C15.
(6) Confirm the colour of picture when after adjustment.
If colour is failure, then adjust the above procedures again.

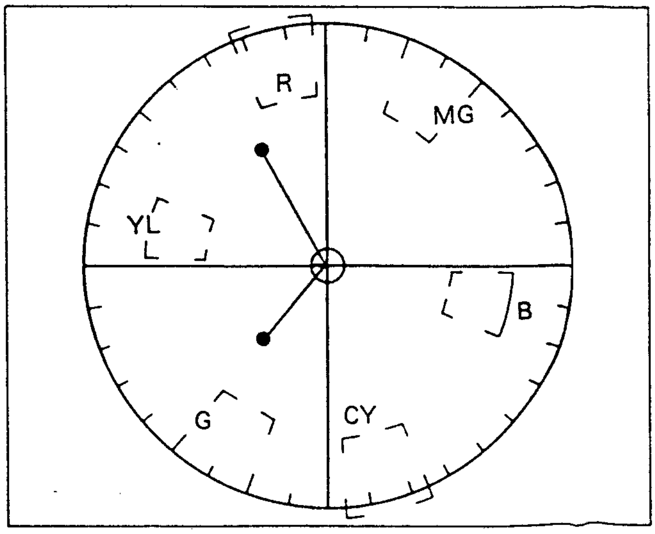


Fig. C17

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR322 and VR323 so that the waveform is minimized.

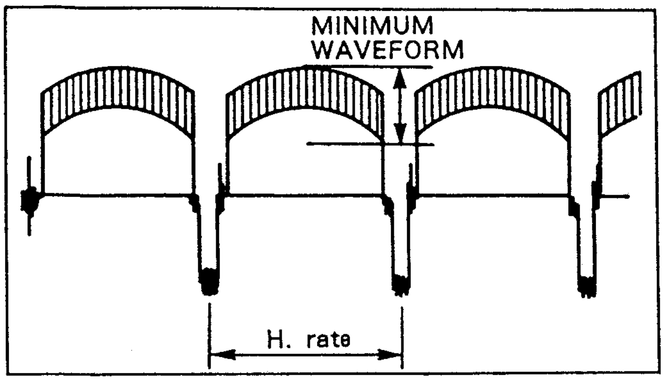


Fig. C18

13. OUTDOOR WHITE BALANCE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR312 VR313	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR312, VR313 : Process C.B.A.

WITH VECTORSCOPE

(1) Set the White Balance Switch on the Camera Operation Unit to the "OUTDOOR".
(2) Connect the jumper wire among TP4, TP5 and TP6 on Process C.B.A.
(3) Aim the camera at the White Chart using a 3200 degrees K Halogen lamp.
(4) Supply the video signal to the vectorscope.
(5) Attach the colour temperature conversion filter (VFK0374) which converts 3200 degrees Kelvin to 5200 degrees Kelvin in front of the lens. (Refer to Note 1 of item 18-3.
(6) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2 of item 18-3)
(7) Adjust the White Balance (B-Y) Outdoor Gain and White Balance (R-Y) Outdoor Gain Controls (VR312 and VR313) so that the colour vectors move to the centre of screen on the vector scope. (Refer to Fig. C19)
(8) Remove the colour temperature conversion filter with the fixture from the lens.

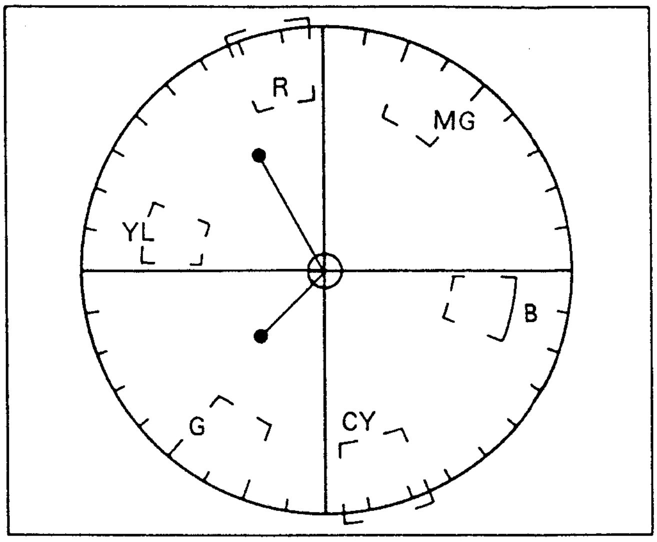


Fig. C19

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR312 and VR313 so that the waveform is minimized.

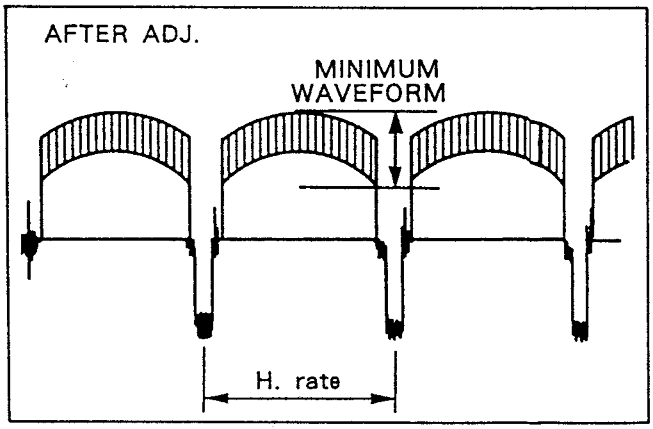


Fig. C20

14. AWB OFFSET ADJUSTMENT WITH VECTOR SCOPE

TP	ADJ.	IRIS	CHART
VIDEO OUT	VR314 VR315	☒	WHITE CHART

M.EQ.	SPEC.
VECTOR SCOPE	VECTORS CENTER

Note:
White balance selector should be set for "INDOOR".

(1) Aim the camera at the white chart and focus the lens on the object.
(2) Connect the VECTOR SCOPE to the video output.
(3) Adjust the offset control (VR314, VR315) so that the vector comes to centre as shown below.

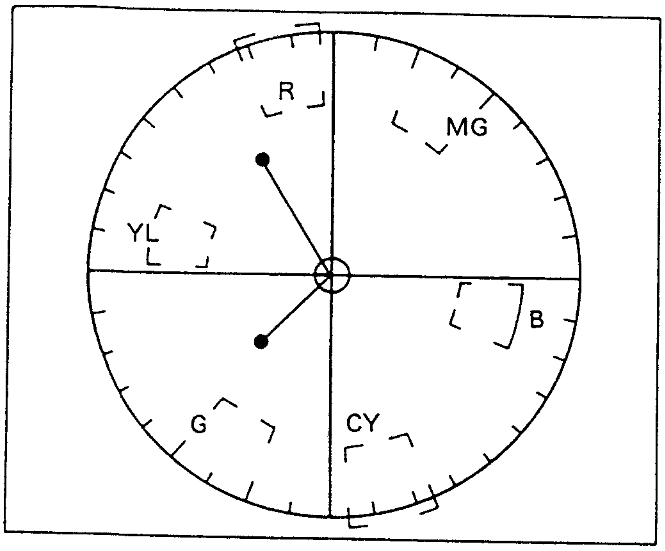


Fig. C21

WITH OSCILLOSCOPE

TP	ADJ.	IRIS	CHART
VIDEO OUT	VR314 VR315		WHITE CHART

M.EQ.	SPEC.
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

(1) Aim the camera at the white chart and focus the lens on the object.
(2) Connect the OSCILLOSCOPE to the video output.
(3) Adjust the offset control (VR314, VR315) so that the waveform is minimized as shown below.

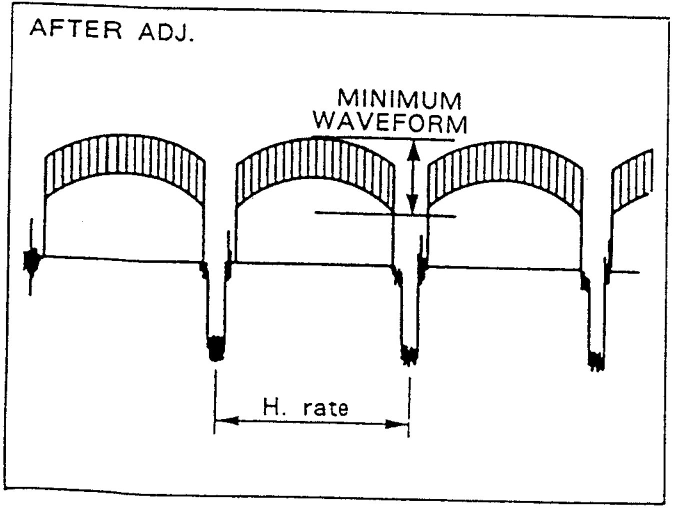


Fig. C22

15. COLOUR PHASE AND R-Y/B-Y GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR316, VR317 VR303, VR324	NO	COLOUR CHIP CHART

M. EQ.	SPEC.
VECTORSCOPE	FIG C23

Note:
VR316, VR317, VR303, VR324 : Process C.B.A.

(1) Aim the camera at a Colour Chip Chart.
(2) Connect the jumper wire among TP4, TP5 and TP6 on the Process C.B.A.
(3) Supply the video signal to the vectorscope.
(4) Adjust the Colour Phase Control (VR303 and VR324), the R-Y Gain Control (VR316) and the B-Y Gain Control (VR317) so that the vector of each colour is as shown in Fig. C23.

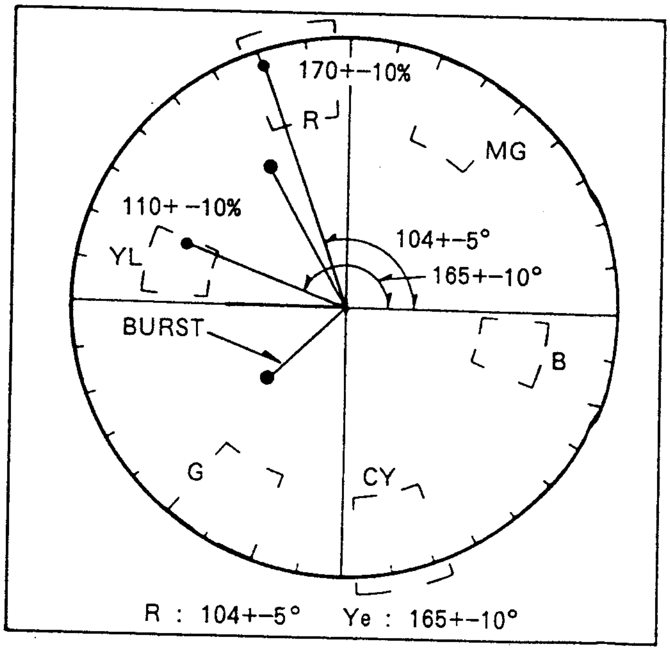


Fig. C23

16. HIGH INTENSITY SUPPRESS ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR306 VR325	NO	COLOUR CHART

M. EQ.	SPEC.
TV MONITOR	HALF SIZE (YELLOW) YELLOW COLOUR IS JUST BEFORE CUT OFF

Note:
VR306 : Process C.B.A.

(1) Aim the camera at the colour chart that it is not colour chip chart,but the colour bar chart and focus the lens to it.
Connect the oscilloscope to camera output.
Adjust the Zoom ring so that H.rate become 12 usec on oscilloscope.

(2) Supply the video output from camera to TV Monitor .Connect the resistor (470ohm) between centre and VR302 and GND as shown in Fig. C24.

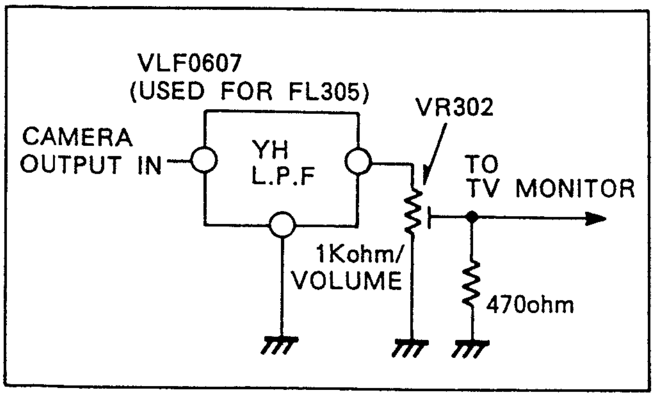

VLF0607
(USED FOR FL305)
VR302
CAMERA
OUTPUT IN
YH
L.P.F
TO
TV MONITOR
1Kohm/
VOLUME
470ohm

Fig. C24

(3) Adjust VR325 so that the yellow part of colour chart appears half size of all yellow part on TV Monitor as shown in Fig. C25.

(4) Next adjust VR306 so that the colour of yellow is just before cut off.

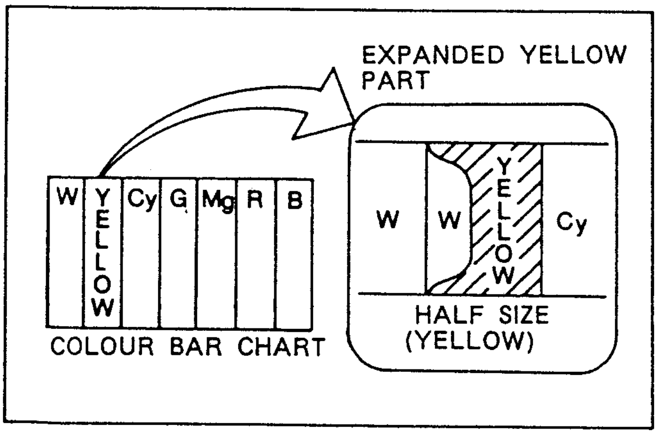

EXPANDED YELLOW PART
W
YELLOW
Cy
G
Mg
R
B
COLOUR BAR CHART
W
W
YELLOW
Cy
HALF SIZE
(YELLOW)

Fig. C25

17. LOW LIGHT INDICATION ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP12	VR107	NO	WHITE CHART

M. EQ.	SPEC.
OSCILLOSCOPE	REFER TO FIG. C26

Note:
TP12, VR107 : Process C.B.A.

(1) Connect the oscilloscope to TP12 and set it in DC mode.

(2) Shade surface of AWT Sensor with hand and adjust VR107 so that DC level at TP12 is changed from "LOW" to "HIGH"

Note:
For more accurate adjustment;
When the illumination of the surface of AWT Sensor is 6lux, the level must be "LOW".
When the illumination of the surface of AWT Sensor is 3lux, the level must be "HIGH".

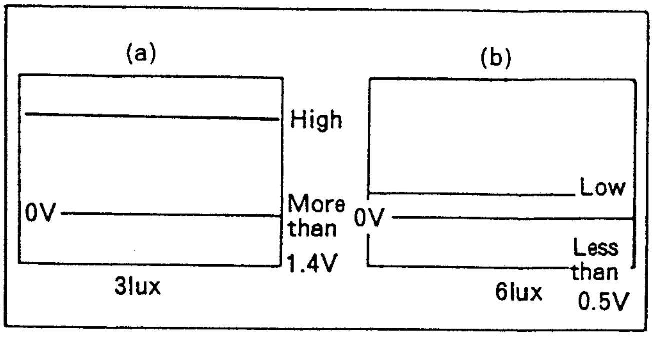

(a)
(b)
High
0V
More than 1.4V
3lux
Low
0V
Less than 0.5V
6lux

Fig. C26

18. AWT MODE ADJUSTMENT

Note:
1) Perform all three sections of this procedure.
2) Set the WHITE BALANCE Switch n the CAMERA OPERATION UNIT to the "AUTO".

18–1. AWT MODE (OFFSET) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR105 VR106	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR105, VR106 : Process C.B.A.
Set the White balance selector for "AUTO" position.

WITH VECTORSCOPE

(1) Aim the camera at the white chart.
(2) Supply the video signal to the vectorscope.
(3) Rotate VR101 and VR102 fully clockwise as shown in Fig. C27.

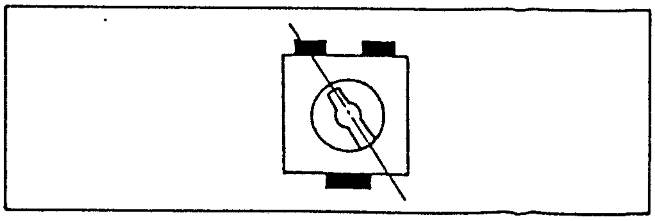


Fig. C27

(4) Adjust the AWT (R–Y OFFSET) and AWT (B–Y OFFSET) controls (VR105 and VR106) so that the colour vectors move to the centre of screen on the vectorscope. (Refer to Fig. 28)

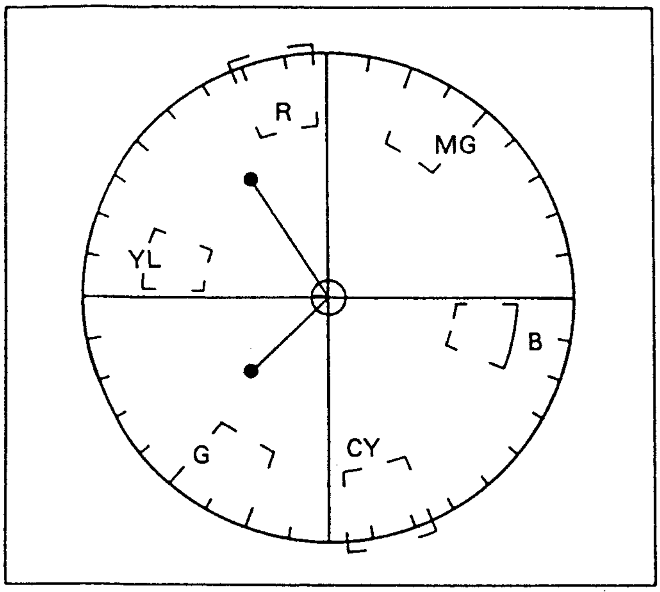


Fig. C28

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR105 and VR106 so that the waveform is minimized.

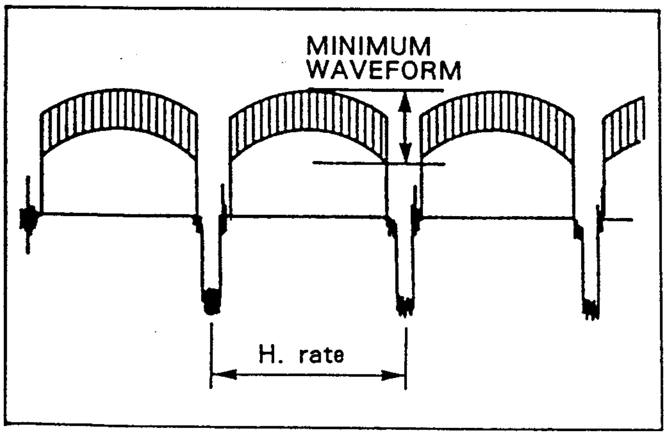


Fig. C29

18–2. AWT MODE (GAIN) ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR103, VR104, VR105, VR106	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:
VR103, VR104, VR105, VR106 : Process C.B.A.
Set the White balance selector for "AUTO" position.

WITH VECTORSCOPE

(1) Aim the camera at the white chart using a 3200 degrees K Halogen lamp.
(2) Supply the video signal to the vectorscope.
(3) Attach the colour temperature conversion filter (VFK0375) x 3 pieces ,which converts 3200 degrees Kelvin to 4000 degrees Kelvin, in front of the Lens and AWT Sensor. (Refer to Note 1 of item. 18–3) (4) If the colour temperature conversion filter is not available, use a day light source. (Refer to Note 2 of item. 18–3)
(5) Adjust the AWT (R–Y GAIN) and AWT (B–Y GAIN) Controls (VR103 and VR104) so that the colour vector move to the centre of screen on the vectorscope. (Refer to Fig. C30)

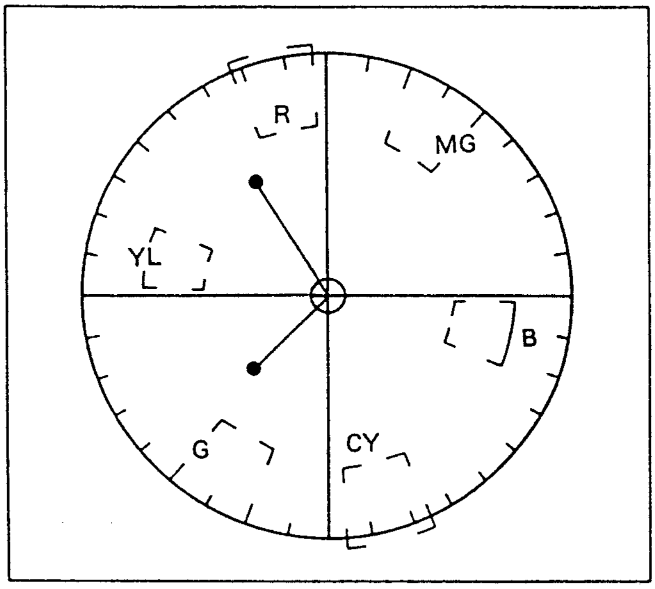


Fig. C30

(6) Next, remove the colour temperature conversion filter with the fixture from the Lens.
(7) If the colour vectors do not collect at the centre, adjust the AWT (R–Y OFFSET) and AWT (B–Y OFFSET) Controls (VR105 and VR106) so that the colour vectors move to the centre of screen on the vectorscope.
(8) Repeat steps (1)–(7) so that the colour vectors collect at the centre of screen on the vectorscope.

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR103, VR104, VR105 and VR106 so that the waveform is minimized.

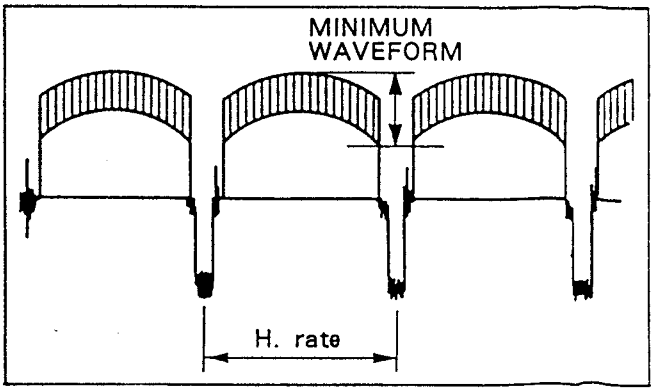


Fig. C31

18–3. HIGH COLOUR TEMPERATURE CLIP ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
VIDEO OUTPUT	VR101 VR102	NO	WHITE CHART

M. EQ.	SPEC.
VECTORSCOPE	CENTER OF VECTORSCOPE
OSCILLOSCOPE	WAVEFORM IS MINIMIZED

Note:

VR101, VR102 : Process C.B.A.
When this adjustment is performed, previous items 18–1 and 18–2 must be completed.
Set the white balance selector for "AUTO" position.

WITH VECTORSCOPE

(1) Aim the camera at the white chart using a 3200 degrees K Halogen lamp.
(2) Supply the video signal to the vectorscope.
(3) Attach the colour temperature conversion filter (VFK0374) x 2 pieces ,which convert 3200 degrees Kelvin to 13000 degrees Kelvin , in front of the Lens and AWT Sensor. (Refer to Note 1 of item. 18–3).
(4) If the colour temperature conversion filters are not available, use a day light source. (Refer to Note 2 of item. 18–3)
(5) Adjust the Colour Temperature Clip Controls (VR101 and VR102) so that the colour vectors collect at the centre of screen on the vectorscope.

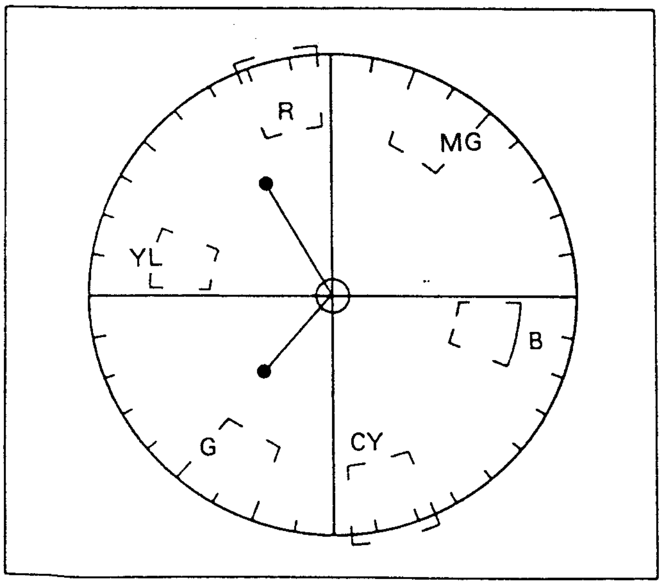


Fig. C32

WITH OSCILLOSCOPE

(1) Adjustment condition and procedure are same as using vectorscope.
(2) Adjust VR101 and VR102 so that the waveform is minimized.

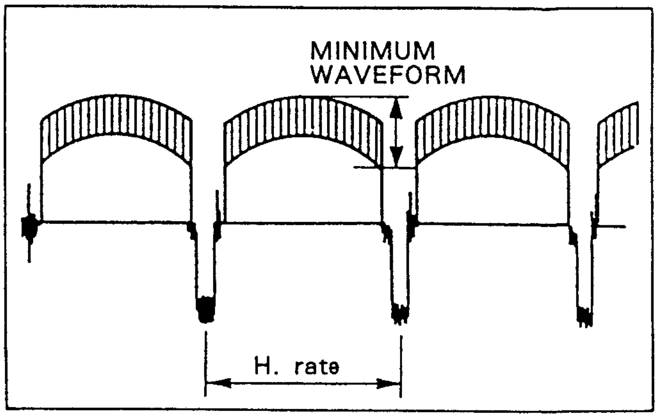


Fig. C33

Note 1:

Attach the fixture to the Lens, then attach the colour temperature conversion filter to fixture.
It can be procured at a Camera Store. Please construct the fixture using the sheet attached to inside cover page at the back of the Service Manual. (Refer to Fig. C34)

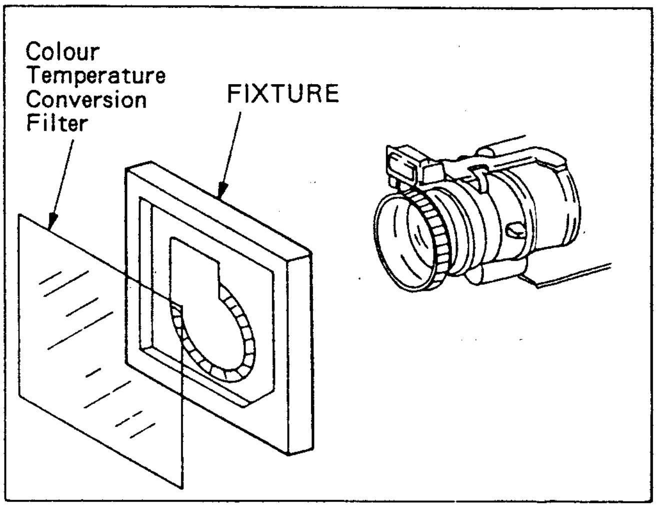


Fig. C34

Note 2:

(1) Aim the camera at a sunny outdoor source (window, etc.).
(2) Incoming light must be from an outdoor source only; source and illumination on the sensor must be more than 5000Lx, and colour temperature must be within 5000 degrees to 6000 degrees Kelvin. (Refer to Fig. C35)

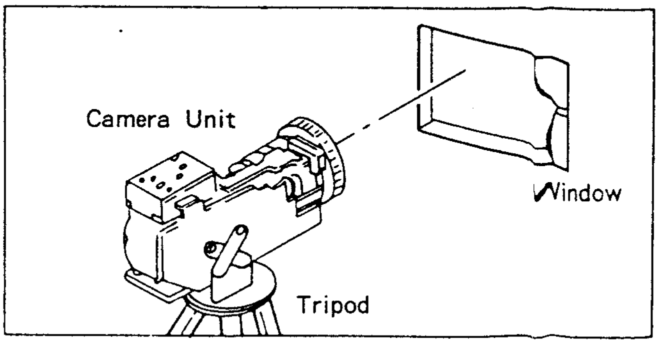


Fig. C35

AUTO FOCUS SECTION

PREPARATION

The following adjustments are for the Auto Focus Unit.

(1) Camera zoom is positioned at the end of TELE side.

19. AF GATE ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP602, TP603	C656	NO	
M. EQ.	**SPEC.**		
OSCILLOSCOPE	T = 9.6 +- 0.4u-sec.		

Note:
TP602, TP603, C656 : AF C.B.A.

(1) Set the AF Gate Control (C656) as shown in Fig. C36.

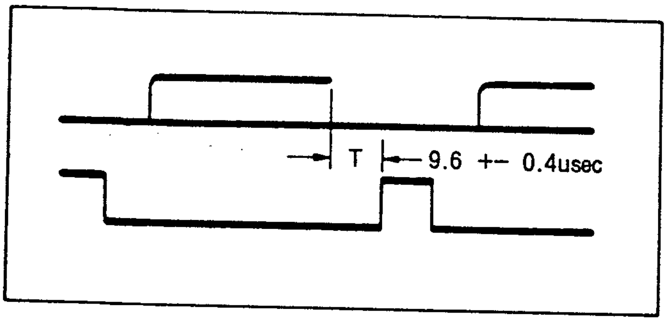


Fig. C36

20. BIMOLF GAIN CONTROL ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP604	VR603	YES	
M. EQ.	**SPEC.**		
OSCILLOSCOPE	A = 16V +- 0.5Vp-p		

Note:
TP604, VR603 : AF C.B.A.

(1) Set the Focus Switch to the MANUAL position.
(2) Cover the camera lens with the lens cap.
(3) Connect the scope to the TP604.
(4) Adjust the Bimolf Gain Control (VR603) so that the signal level (A) is 16V +- 0.5Vp-p.

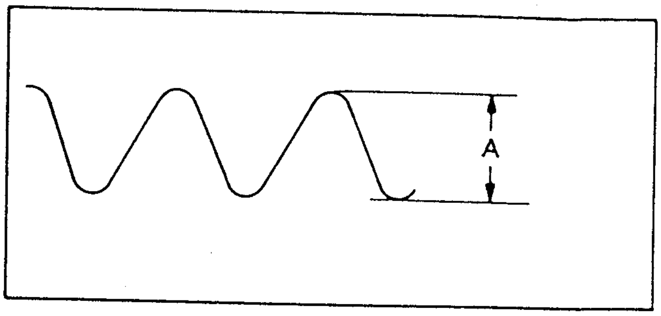


Fig. C37

21. AF AMP BIAS AND GAIN ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
TP3, TP9 TP10, TP11	VR601, VR602	NO	GRAY SCALE CHART
M. EQ.	**SPEC.**		
D.V.M.	----------------		

Note:
TP3, TP9, TP10, TP11 : Process C.B.A.
VR601, VR602 : AF C.B.A.

(1) Connect a jumper wire between TP3 and TP10.
(2) Adjust the AF AMP BIAS Control (VR601) so that the voltage level at TP9 is 1.74V +- 0.02V.
(3) Disconnect the jumper wire between TP3 and TP10.
(4) Next, connect a jumper wire between TP10 and TP11.
(5) Adjust the AF AMP Gain Control (VR602) so that the voltage Level of TP9 is 3.72V +- 0.05V.
(6) Disconnect the jumper wire between TP10 and TP11.
(7) Next, confirm the voltage level at TP9 by connecting a jumper wire between TP3 and TP10.
(8) If the voltage level at TP9 is not 1.74V +- 0.02V, repeat steps (1) - (6).

22.AF VH FREQUENCY ADJUSTMENT

TP	ADJ.	IRIS CAP	CHART
TP605	C621	NO	WHITE/GRAY CHART
M. EQ.	**SPEC.**		
OSCILLOSCOPE	A=2.80Vp-p+-0.05Vp-p		

Note:
TP605,TP610,TP611:AF C.B.A.

Zoom : TELE SIDE
Focus : AUTO

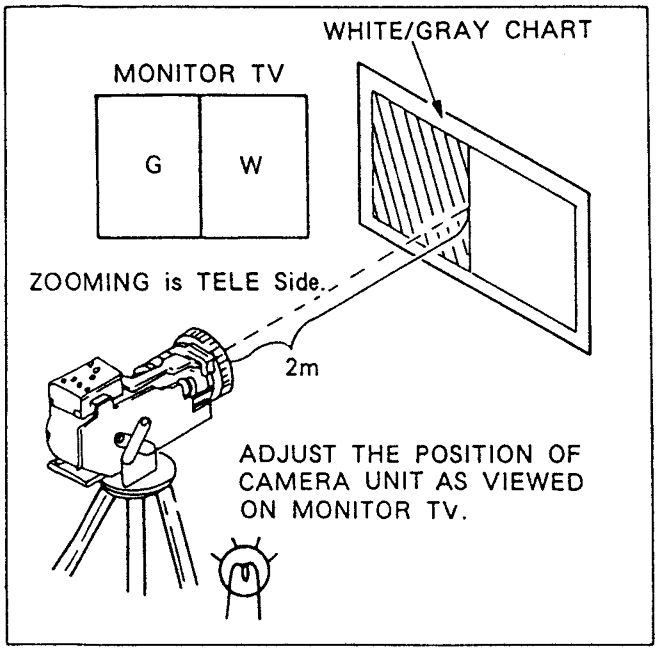

WHITE/GRAY CHART
MONITOR TV
G
W
ZOOMING is TELE Side.
2m
ADJUST THE POSITION OF CAMERA UNIT AS VIEWED ON MONITOR TV.

Fig. C38

(1) Connect a jumper between TP10 and TP11.
(2) Aim the camera at the white/gray chart attached to inside of this service manual.
(3) Confirm that the voltage at TP610 is 180mVp-p+–10mVp-p.
(4) If the voltage at TP610 is not it,adjust the light source so that the 180mVp-p +– 10mVp-p should be obtained at TP610.
(5) Adjust C621 so that the "A" level at TP605 is 2.80mVp-p +– 0.05mVp-p.

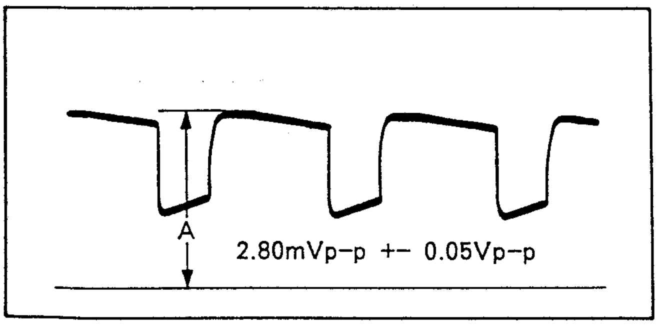

A
2.80mVp-p +– 0.05Vp-p

Fig. C39

2-4-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

PREPARATION

The following adjustments are for the Electronic Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely aligned before viewfinder adjustments are made.

1. H-OSC ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
Pin2 of P701	VR702	NO	BALL CHART
M. EQ.		**SPEC.**	
FREQUENCY COUNTER		15.6KHz +– 0.1KHz	

Note:
P701, VR702 : E.V.F. C.B.A.

(1) Connect the scope to Pin2 of P701, use DC.
(2) Adjust the H-OSC (VR702) so that the frequency is 15.6 +– 0.1KHz.

2. CENTERING ADJUSTMENT

(1) Aim the camera at the registration chart.
(2) Adjust the Deflection Yoke Centering Magnets by turning them so that the picture on monitor TV is centered.

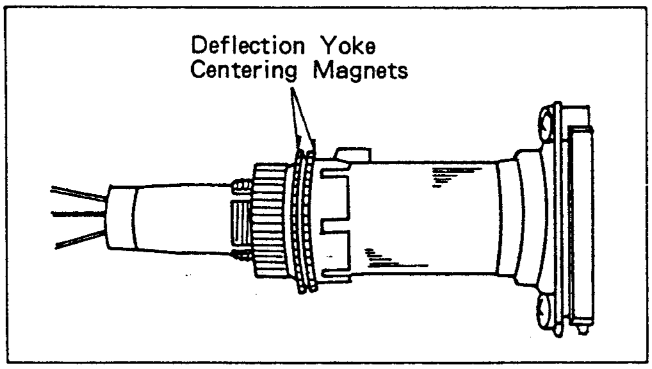

Deflection Yoke Centering Magnets

Fig. C40

3. FOCUS ADJUSTMENT

TP	**ADJ.**	**LENS CAP**	**CHART**
	VR704	NO	BALL CHART
M. EQ.		**SPEC.**	
VIEWFINDER		BEST RESOLUTION	

Note:
VR704 : E.V.F. C.B.A.

(1) Aim the camera at the Ball chart.
(2) Adjust the focus control (VR704) for best resolution in the viewfinder.

4. V. SIZE ADJUSTMENT

TP	ADJ.	LENS CAP	CHART
	VR701	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		VERTICAL SIZE IS FIXED.	

Note:
VR701 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust the Vertical Size (VR701) so the Vertical Size is correct and the picture does not roll as shown in Fig. C41.

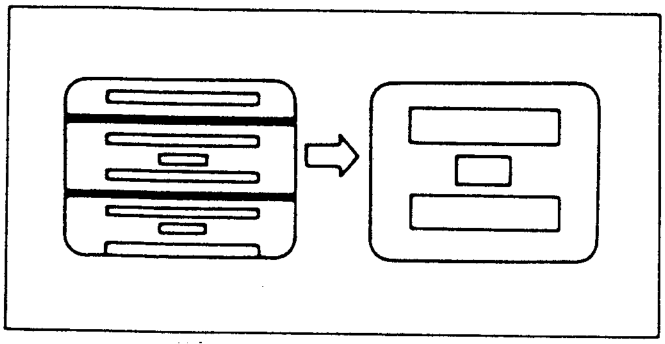


Fig. C41

5. BRIGHTNESS ADJUSTMENT

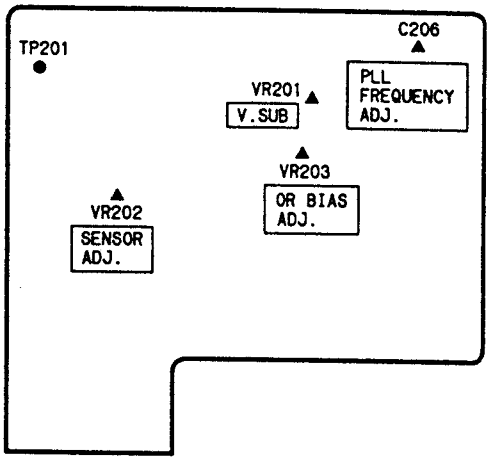
TP	ADJ.	LENS CAP	CHART
	VR705	NO	GRAY SCALE CHART
M. EQ.		**SPEC.**	
VIEWFINDER		NATURAL GRADATION	

Note:
VR705: EVF C.B.A.

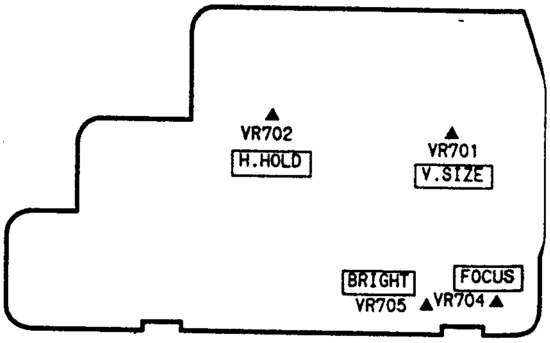
(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR705) so that the black and white bars in the EVF screen are the same as they are in the monitor TV screen.

LOCATION OF TEST POINTS &

SENSOR C.B.A.

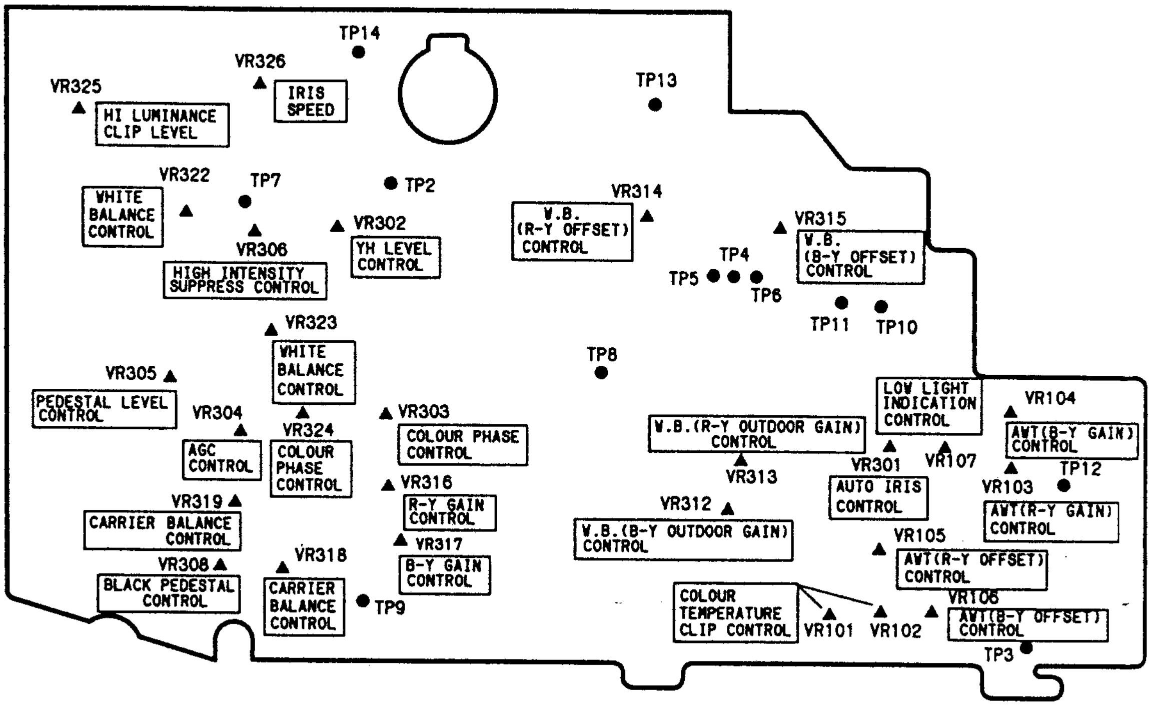

TP201
C206
VR201
V.SUB
PLL FREQUENCY ADJ.
VR203
OR BIAS ADJ.
VR202
SENSOR ADJ.

E.V.F. C.B.A.

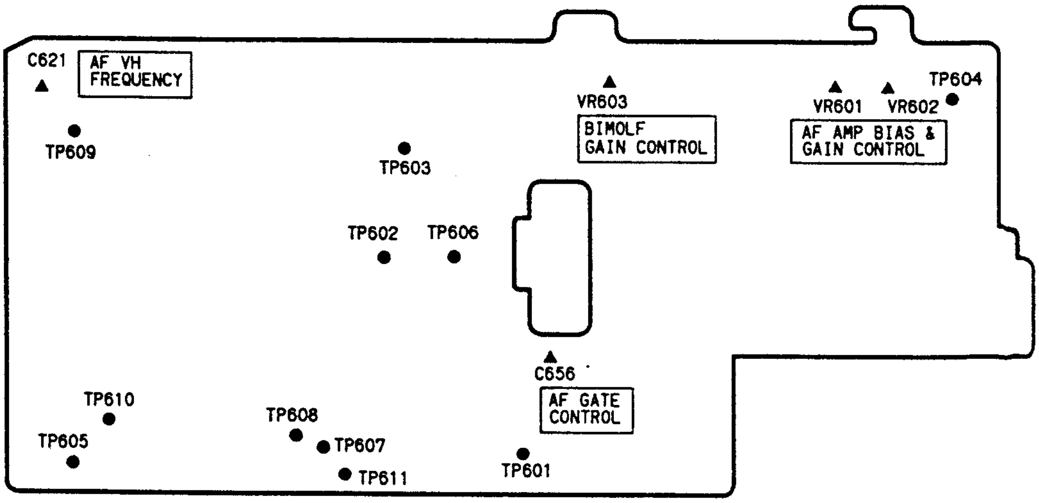

VR702
H.HOLD
VR701
V.SIZE
BRIGHT
VR705
FOCUS
VR704

CONTROLS (1)

PROCESS C.B.A.

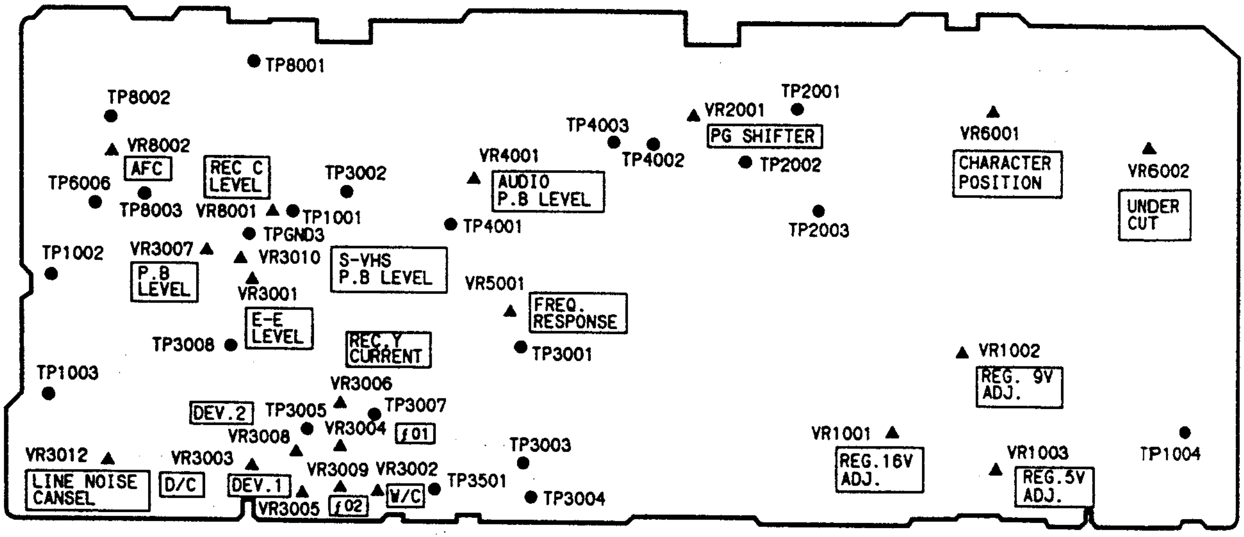

TP14
VR326
IRIS SPEED
VR325
HI LUMINANCE CLIP LEVEL
TP13
VR322
WHITE BALANCE CONTROL
TP7
TP2
VR314
V.B. (R-Y OFFSET) CONTROL
VR315
V.B. (B-Y OFFSET) CONTROL
VR306
HIGH INTENSITY SUPPRESS CONTROL
VR302
YH LEVEL CONTROL
TP4
TP5
TP6
TP11
TP10
VR323
WHITE BALANCE CONTROL
TP8
VR305
PEDESTAL LEVEL CONTROL
VR304
AGC CONTROL
VR324
COLOUR PHASE CONTROL
VR303
COLOUR PHASE CONTROL
LOW LIGHT INDICATION CONTROL
VR104
AWT(B-Y GAIN) CONTROL
V.B.(R-Y OUTDOOR GAIN) CONTROL
VR313
VR301
VR107
TP12
AUTO IRIS CONTROL
VR103
AWT(R-Y GAIN) CONTROL
VR319
CARRIER BALANCE CONTROL
VR316
R-Y GAIN CONTROL
VR312
V.B.(B-Y OUTDOOR GAIN) CONTROL
VR105
AWT(R-Y OFFSET) CONTROL
VR317
B-Y GAIN CONTROL
VR308
BLACK PEDESTAL CONTROL
VR318
CARRIER BALANCE CONTROL
TP9
COLOUR TEMPERATURE CLIP CONTROL
VR101
VR102
VR106
AWT(B-Y OFFSET) CONTROL
TP3

AUTO FOCUS C.B.A.

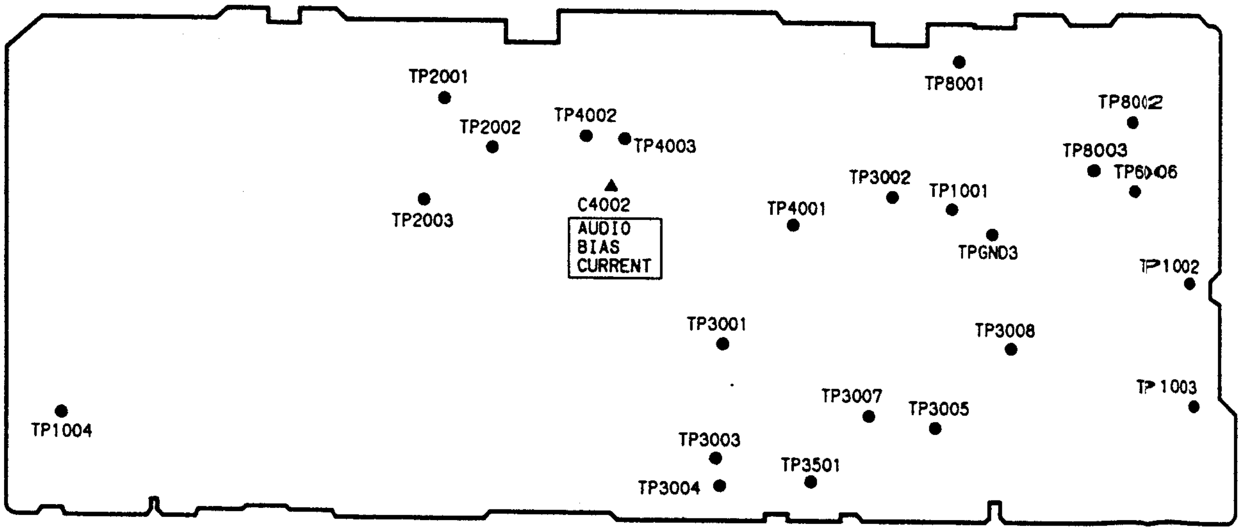

C621
AF VH FREQUENCY
TP609
VR603
BIMOLF GAIN CONTROL
VR601
VR602
TP604
AF AMP BIAS & GAIN CONTROL
TP603
TP602
TP606
C656
AF GATE CONTROL
TP610
TP605
TP608
TP607
TP611
TP601

LOCATION OF TEST POINTS & CONTROLS (2)

MAIN C.B.A. (FOIL SIDE)


TP8001
TP8002
VR8002
AFC
REC C LEVEL
TP6006
TP8003
VR8001
TP1001
TP3002
TPGND3
TP1002
VR3007
P.B LEVEL
VR3010
VR3001
S-VHS P.B LEVEL
E-E LEVEL
TP3008
REC.Y CURRENT
TP1003
VR3006
DEV.2
TP3005
TP3007
VR3004
VR3008
ƒ01
VR3012
VR3003
LINE NOISE CANSEL
D/C
DEV.1
VR3009
VR3002
VR3005
ƒ02
W/C
TP3501
TP3003
TP3004
VR4001
AUDIO P.B LEVEL
TP4001
VR5001
FREQ. RESPONSE
TP3001
TP4003
TP4002
VR2001
PG SHIFTER
TP2001
TP2002
TP2003
VR6001
CHARACTER POSITION
VR6002
UNDER CUT
VR1002
REG. 9V ADJ.
VR1001
REG.16V ADJ.
VR1003
REG.5V ADJ.
TP1004

MAIN C.B.A. (COMPONENT SIDE)


TP2001
TP2002
TP4002
TP4003
TP2003
C4002
AUDIO BIAS CURRENT
TP8001
TP8002
TP8003
TP6006
TP3002
TP1001
TP4001
TPGND3
TP1002
TP3001
TP3008
TP1003
TP3007
TP3005
TP1004
TP3003
TP3501
TP3004

2-4-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the VTR section of VHS Movie.

1) VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range : 0.01~50V
2) Dual Trace Oscilloscope
   Voltage Range : 0.06~50V/div
   Frequency Range : 0~10MHz
   Probe : 10: 1 ro 1:1
3) Frequency counter
   Frequency Range : 0~10MHz
4) Signal Generator (Sinewave)
   Frequency Range : 0~10MHz
5) Video Sweep Generator
   Frequency Range : 0~10MHz
6) Colour Monitor TV
7) Plastic Tip Driver
8) VHS Alignment Tape
9) Line Adaptor (VW-KM3)

PREPARATION

(1) Remove the casing panels
    (Refer to the disassemble section)
(2) Connect the jumper wire between P6011-5 and GND as shown in Fig.E1
(3) Supply the video signal and audio signal to the video section by using the Line Adaptor as shown in Fig.E2.

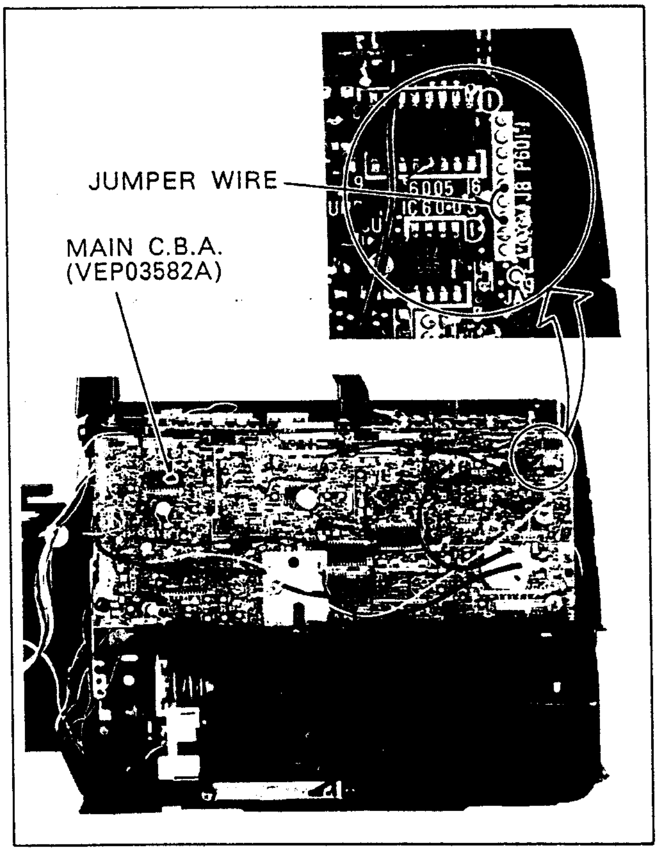

JUMPER WIRE
MAIN C.B.A.
(VEP03582A)

Fig. E1

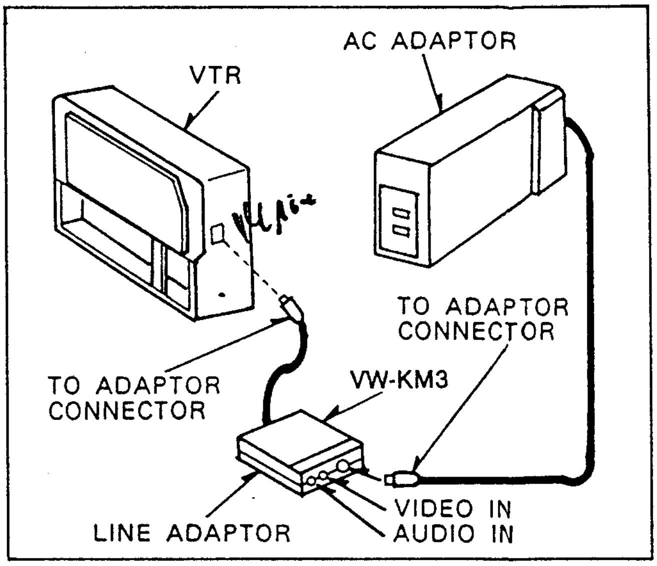
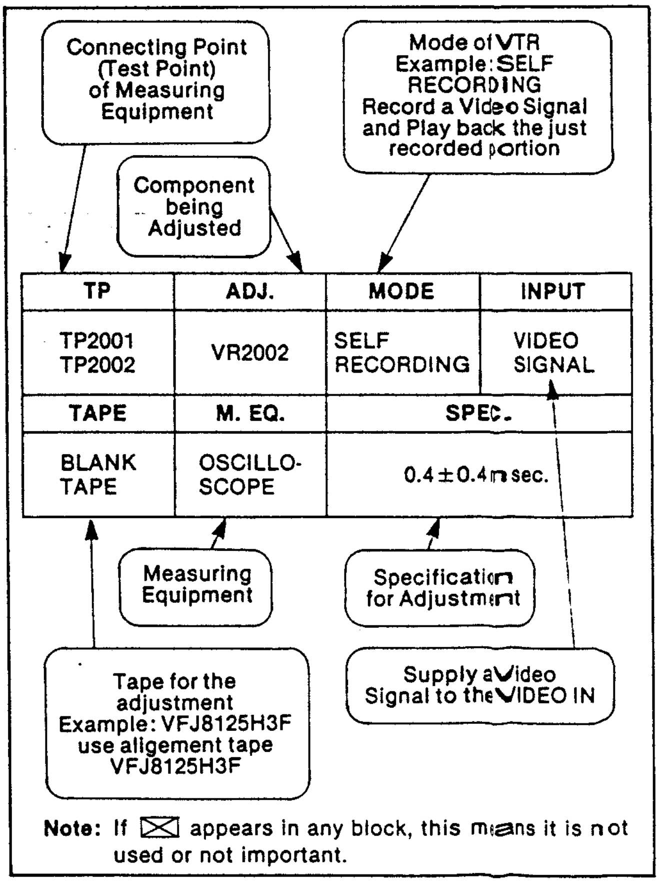

AC ADAPTOR
VTR
TO ADAPTOR
CONNECTOR
TO ADAPTOR
CONNECTOR
VW-KM3
LINE ADAPTOR
VIDEO IN
AUDIO IN

Fig. E2

Note:
The Line Adaptor is available to check the only VTR section.

HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Component being Adjusted
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example: VFJ8125H3F use alligement tape VFJ8125H3F
Supply a Video Signal to the VIDEO IN

TP	ADJ.	MODE	INPUT
TP2001 TP2002	VR2002	SELF RECORDING	VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	0.4±0.4 m sec.	

Note: If ☒ appears in any block, this means it is not used or not important.

FOR TRIGGERING OF THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.
H. rate : TP3002 (Video output)
V. rate : TP2001 (Head Switching signal)

POWER SECTION

1. REG. 9V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1002	VR1002	REC / PLAY	
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	8.6 + 0.1V − 0.05V	

2. REG. 5V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1003	VR1003	CAMERA RECORDING	
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	4.91 +− 0.025V	

3. REG. 16V ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP1001	VR1001	REC / PLAY	
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	15.2 +−0.1V	

4. UNDER CUT ADJUSTMENT

TP	ADJ.	MODE	INPUT
P6011−(6)	VR6002	REC / PLAY	
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO−SCOPE	HIGH→ PULSE → LOW	

(1) Supply the DC voltage 10.5 +− 0.05V to the 14P multi−connector Pin (1) Hot and Pin (3) GND.
(2) Connect the oscilloscope to P6011−(6).
(3) Turn the under cut control (VR6002) fully counter clockwise.
(4) Turn VR6002 clockwise slowly until the wave−form is changed from high to low through the pulse trains.

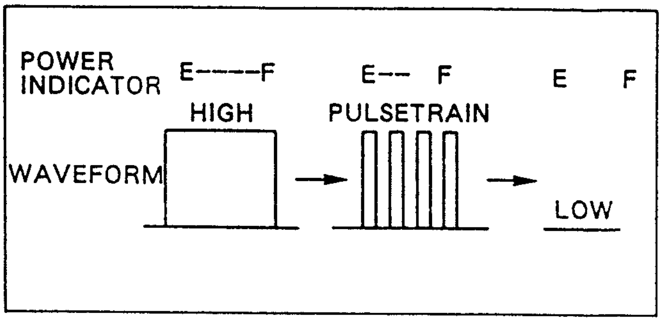

POWER INDICATOR
E----F
E-- F
E F
HIGH
PULSETRAIN
WAVEFORM
LOW

Fig. E3

SERVO SECTION

5. PG SHIFTER ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP2001 TP3002	VR2001	PLAY	
TAPE	**M. EQ.**	**SPEC.**	
ALIGNMENT TAPE (VFM8180HMDH ②)	OSCILLO-SCOPE	6.5H±1H	

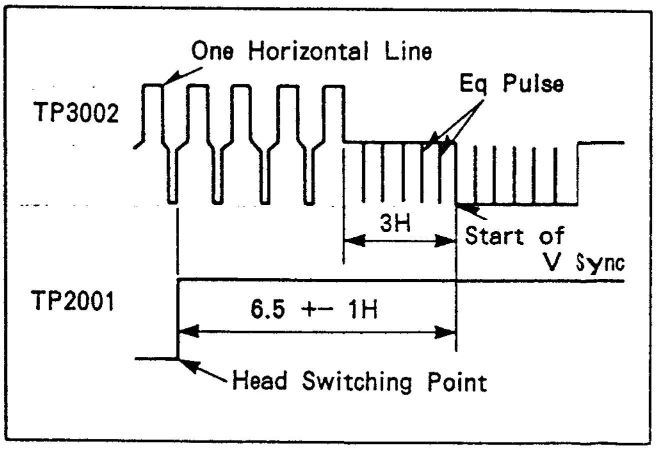

One Horizontal Line
Eq Pulse
TP3002
3H
Start of V Sync
TP2001
6.5 +− 1H
Head Switching Point

Fig. E4

LUMINANCE & CHROMINANCE SECTION

6. E-E LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3001	STOP	COLOUR BAR
TAPE	**M.EQ.**	**SPEC.**	
	OSCOLLO−SCOPE	A=1.5+−0.03Vp-p B=0.6+−0.15Vp-p	

Note:
S−VHS/VHS selector should be set for 'VHS" position

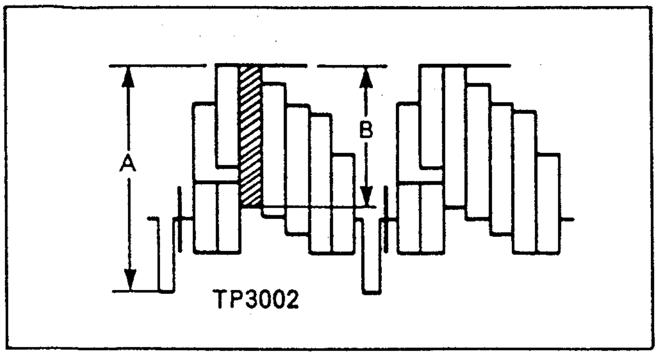


Fig. E5

7. AFC ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP8003	VR8002	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	FREQ. COUNTER	4.2 +- 0.15MHz	

(1) Connect Diode to TP8002 as shown below.

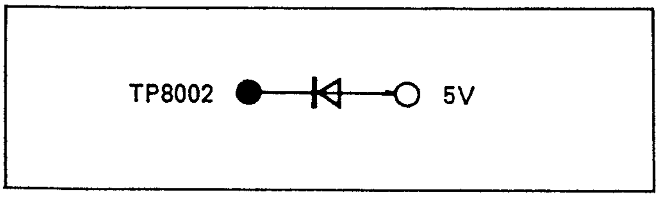


Fig. E6

(2) Connect the frequency counter to TP8003.
(3) Adjust the VR8002 so that frequency become 4.2 +- 0.15MHz.

8. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

8-1. SYNC TIP FREQUENCY ADJUSTMENT

<<VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3007	VR3004	REC.PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	FREQ. COUNTER	3.8MHz+-0.05MHz	

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3007	VR3009	REC.PLAY	
TAPE	**M. EQ.**	**SPEC.**	
S-VHS BLANK TAPE	FREQ. COUNTER	5.4MHz+-0.05MHz	

(1) Set the unit to S-VHS mode and REC.PLAY mode.
(2) Adjust VR3009 so that the reading of frequency counter is 5.4MHz+-0.05MHz at TP3007.

8-2. DEVIATION ADJUSTMENT

<<VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003(HOT) TP3004(GND)	VR3005	REC.PLAY	COLOUR BAR
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

(1) Supply colour bar video signal to 14P multi connector through line adaptor.(Refer to preparation)
(2) Connect a signal generator(sine wave) to TP3007 on Main C.B.A. and set frequency and output level of it as follows.
Frequency:4.8MHz+-0.05MHz
Output :0.1Vp-p
(3) Connect the oscilloscope to TP3003(HOT) and TP3004(GND) and it uses a trigger at TP2001.
(4) Adjust VR3005 so that inner beat at white portion of colour bar becomes maximum as shown in Fig. E7,Fig. E8.

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003(HOT) TP3004(GND)	VR3008	REC.PLAY	COLOUR BAR (B/W MODE)
TAPE	**M.EQ.**	**SPEC.**	
S-VHS BLANK TAPE	OSCILLO-SCOPE/ FREQ. COUNTER	INNER BEAT IS MAXIMUM	

(1) Set the unit to S-VHS mode and REC.PLAY mode.
(2) Supply colour bar video signal(black & white signal mode) to 14P multi connector through line adaptor.(refer to preparation)
(3) Connect a signal generator(sine wave) to TP3007 on Main C.B.A. and set the frequency and output level of it as follows.
Frequency:7.0MHz+-0.05MHz
Output :0.1Vp-p
(4) Connect the oscilloscope to TP3003(HOT) and TP3004(GND) and it uses a trigger at TP2001.
(5) Adjust VR3005 so that inner beat at white portion of colour bar becomes maximum as shown in Fig. E7,Fig. E8.

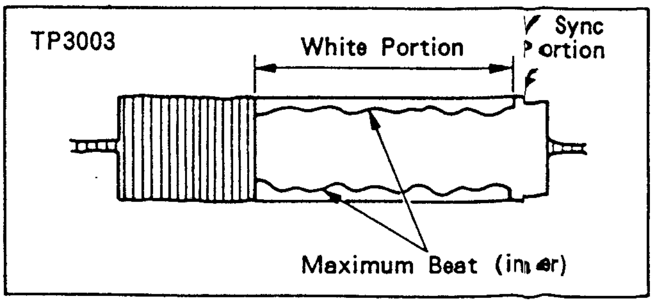


Fig. E7

(Misadjustment)

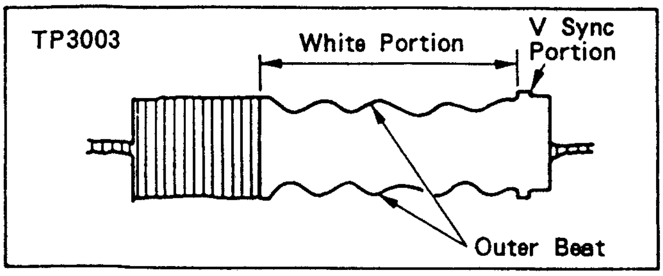

TP3003
White Portion
V Sync Portion
Outer Beat

Fig. E8

9. WHITE AND DARK CLIP ADJUSTMENT

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3005	VR3002 VR3003	REC	COLOUR BAR(B/W SIG. MODE W/WHITE WINDOW)
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	A = 200 +- 5% B = 160 +- 5%	

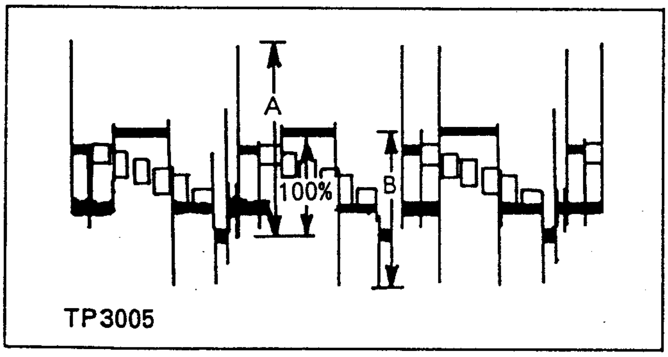

A
100%
B
TP3005

Fig. E9

(1) Set the unit to S-VHS mode and REC.PLAY mode.
(2) Supply colour bar signal to 14P multi connector through line adaptor.(refer to preparation).
(3) Adjust VR3002,VR3003 so that the level of waveform is shown in Fig. E7.

10. RECORDING CURRENT ADJUSTMENT

Preparation:
Connect the Electrolytic Capacitor (6V/47u) between TP3007 (+) to GND.

10-1. REC CHROMA LEVEL ADJUSTMENT

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR8001	REC/PLAY	COLOUR BAR (W/WHITE WINDOW)
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	26 +- 5mVp-p	

(1) Set the unit to S-VHS mode and REC.PLAY mode.
(2) Connect the Oscilloscope to TP3003 (HOT) and TP3004 (GND).
(3) Eliminate Luminance signal by turning VR3006.
(4) Adjust VR8001 so that Chroma level become 26 +- 5mVp-p.

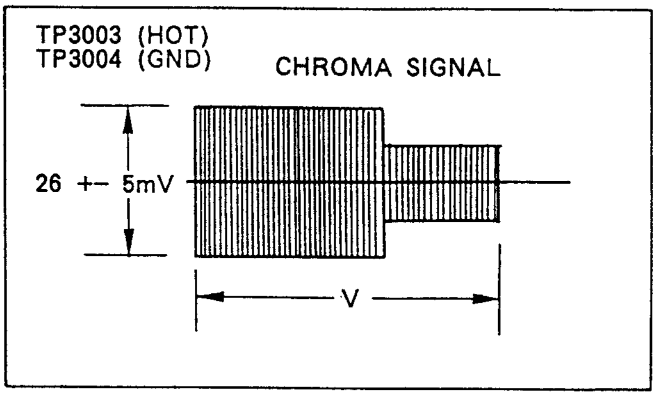

TP3003 (HOT)
TP3004 (GND)
CHROMA SIGNAL
26 +- 5mV
V

Fig. E10

10-2. LUMINANCE RECORDING CURRENT ADJUSTMENT

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3003 (HOT) TP3004 (GND)	VR3006	REC/PLAY	VIDEO SIGNAL
TAPE	**M.EQ.**	**SPEC.**	
BLANK TAPE	OSCILLO-SCOPE	100mV +- 5mVp-p	

(1) Set the unit to S-VHS mode and REC.PLAY mode.
(2) Supply colour bar video signal to 14P multi connector through line adaptor.(refer to preparation)
(3) Adjust VR3006 to 100mV+-5mVp-p.

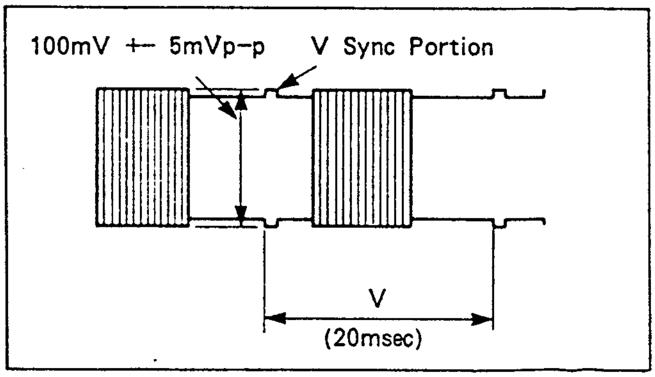

100mV +- 5mVp-p
V Sync Portion
V
(20msec)

Fig. E11

11. LINE NOISE CANCEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3008	VR3012	SELF RECORDING (VHS MODE)	
TAPE	**M. EQ.**	**SPEC.**	
BLANK	OSCILLO-SCOPE	Less than 16mVp-p	

(1) Record the video signal.(VHS MODE)
(2) Connect the oscilloscope to TP3008.
(3) Playback just recorded portion.
(4) Adjust VR3012 so that level between sync and white 100% become less than 16mVp-p.

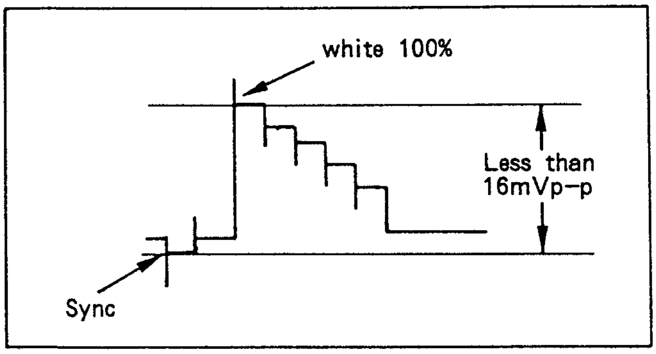


Fig. E12

12. VIDEO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3002	VR3007	SELF RECORDING (VHS MODE)	COLOUR BAR
TAPE	**M. EQ.**	**SPEC.**	
BLACK TAPE	OSCILLO-SCOPE	A = 1.0 +- 0.05Vp-p B = 0.6 +- 0.15Vp-p	

(1) Record the colour bar signal.
(2) Connect the oscilloscope to TP3002.
(3) Adjust the VR3007 so that level become A = 1.0 +- 0.05Vp-p B = 0.6 +- 0.15Vp-p

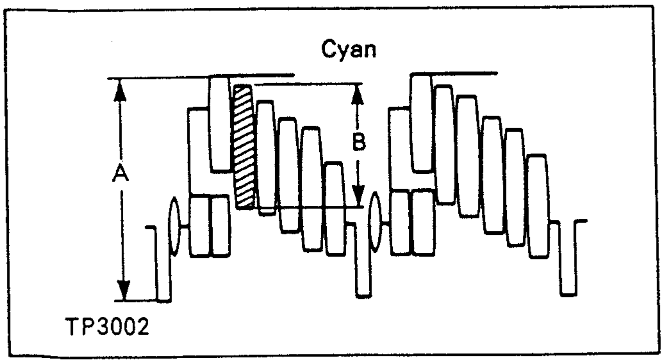


Fig. E13

13. S-VHS VIDEO PLAYBACK LEVEL ADJUSTMENT

<<S-VHS MODE>>

TP	ADJ.	MODE	INPUT
TP3002	VR3010	SELF RECORDING	COLOUR BAR (B/W SIG. MODE)
TAPE	**M. EQ.**	**SPEC.**	
BLACK TAPE	OSCILLO-SCOPE	A : 1.0 +- 0.05Vp-p	

(1) Set the unit to S-VHS mode.
(2) Play back the just recorded portion.
(3) Connect the scope to TP3002.
(4) Adjust VR3010 so that the level become A = 1.0 +- 0.05 Vp-p.

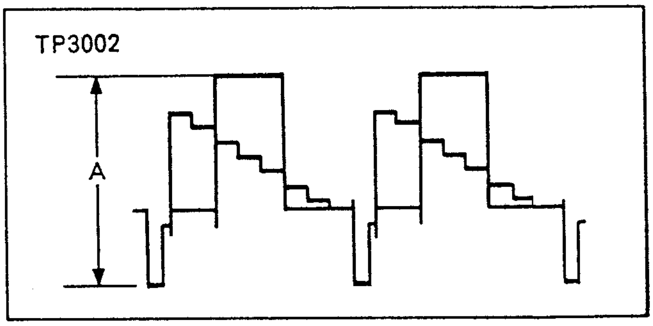


Fig. E14

14. HEAD AMP FREQUENCY RESPONCE ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP3010 (OR Y OUTPUT AT S TERMINAL)	VR5001	SELF RECORDING	VIDEO SWEEP SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	VIDEO SWEEP/ OSCILLO-SCOPE	0.1MHz:4MHz=5:3 AS SHOWN IN Fig.E17	

Note: Edit switch must be off.
Set the S=VHS/VHS switch for S-VHS.

(1) Set the sweep generator output as shown below.

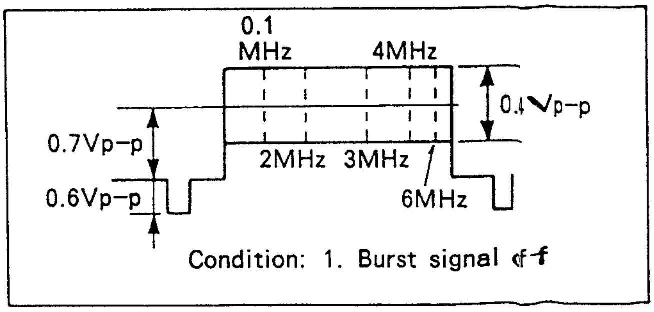


Fig. E15

(2) Connect the jumper wire between P6011-5 and GND as shown in Fig. E1.
(3) Supply the sweep signal IC3001-4 through capacitor (25V,0.47uF) and resistor (75 ohm) as shown below.

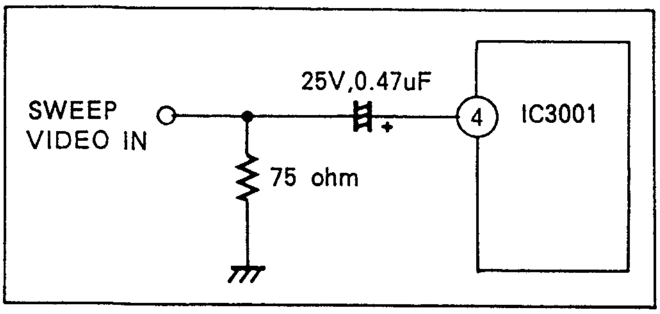


Fig. E16

(4) Record the sweep signal for a few minutes.
(5) Play back just recorded portion.
(6) Adjust the head amp freq. control (VR5001) so that the waveform is as shown below.

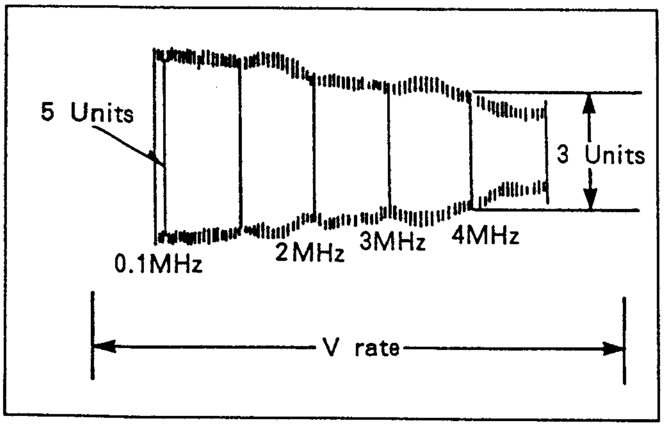


Fig. E17

AUDIO SECTION

15. AUDIO BIAS CURRENT ADJUSTMENT

TP	ADJ.	MODE	INPUT
TP4002 (HOT) TP4003 (GND)	C4002	REC/PLAY	
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	D.V.M.	2.9mVrms +- 0.1mVrms	

16. AUDIO PLAYBACK LEVEL ADJUSTMENT

TP	ADJ.	MODE	INPUT
LINE OUT (TP4001)	VR4001	SELF RECORDING	1KHz AUDIO −60dB SIGNAL/ VIDEO SIGNAL
TAPE	**M. EQ.**	**SPEC.**	
BLANK TAPE	SIGNAL GENERATOR/D.V.M.	EE LEVEL= −8.0 +− 2dB P.B LEVEL= −8.0+−1dB	

SYSTEM CONTROL SECTION

17. CHARACTER POSITION ADJUSTMENT

TP	ADJ.	MODE	INPUT
VIEW FINDER	VR6001	STOP	
TAPE	**M. EQ.**	**SPEC.**	
	VIEW FINDER	CHARACTER IS CENTRE	

(1) Connect the EVF unit to the VTR unit.
(2) Display the battery remaining indicator and counter number on the EVF.
(3) Adjust the osc control (VR6001) so that the character position is shown below.

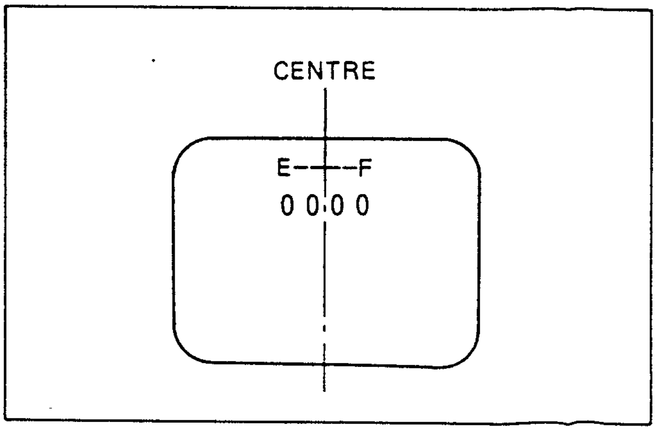
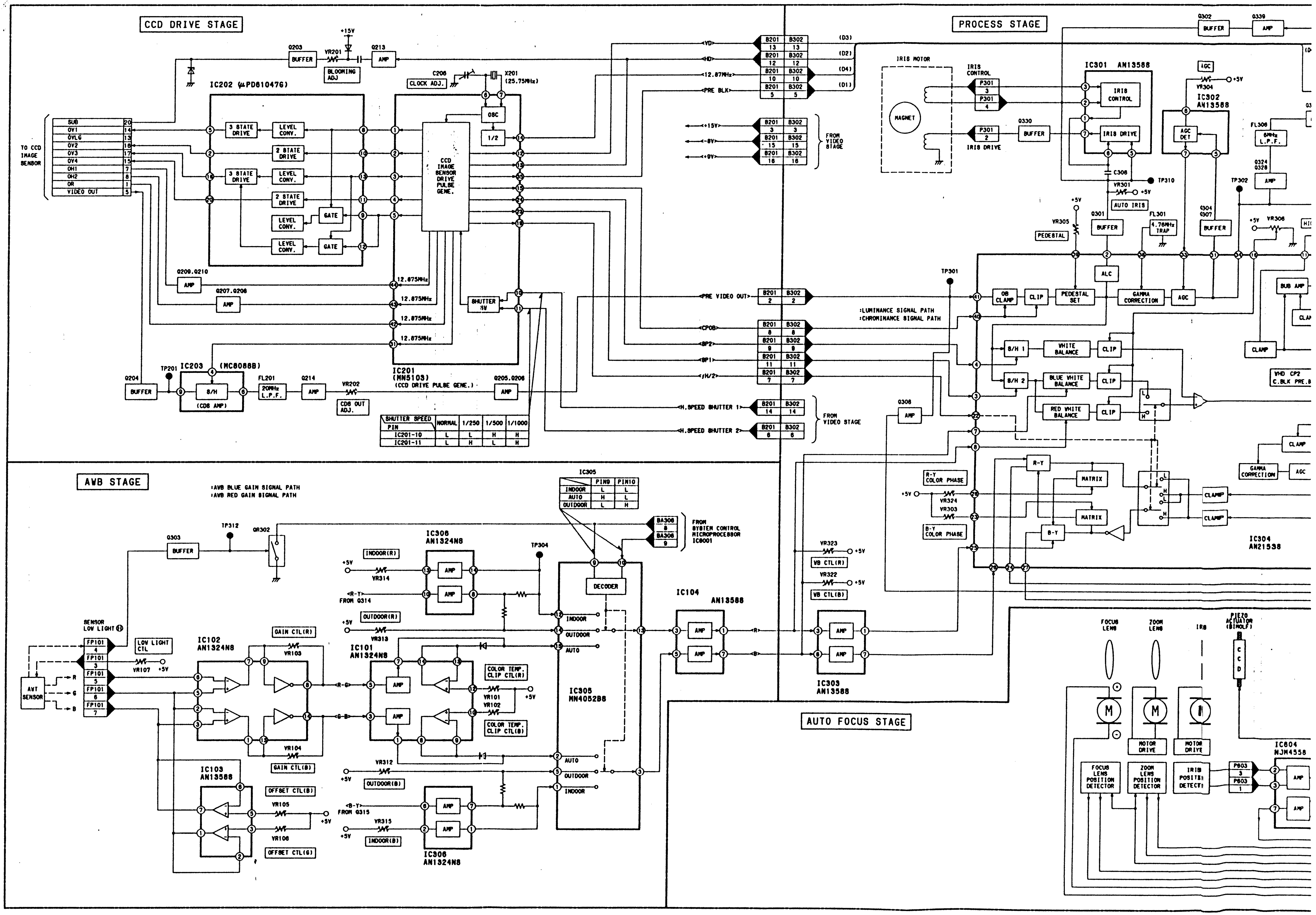
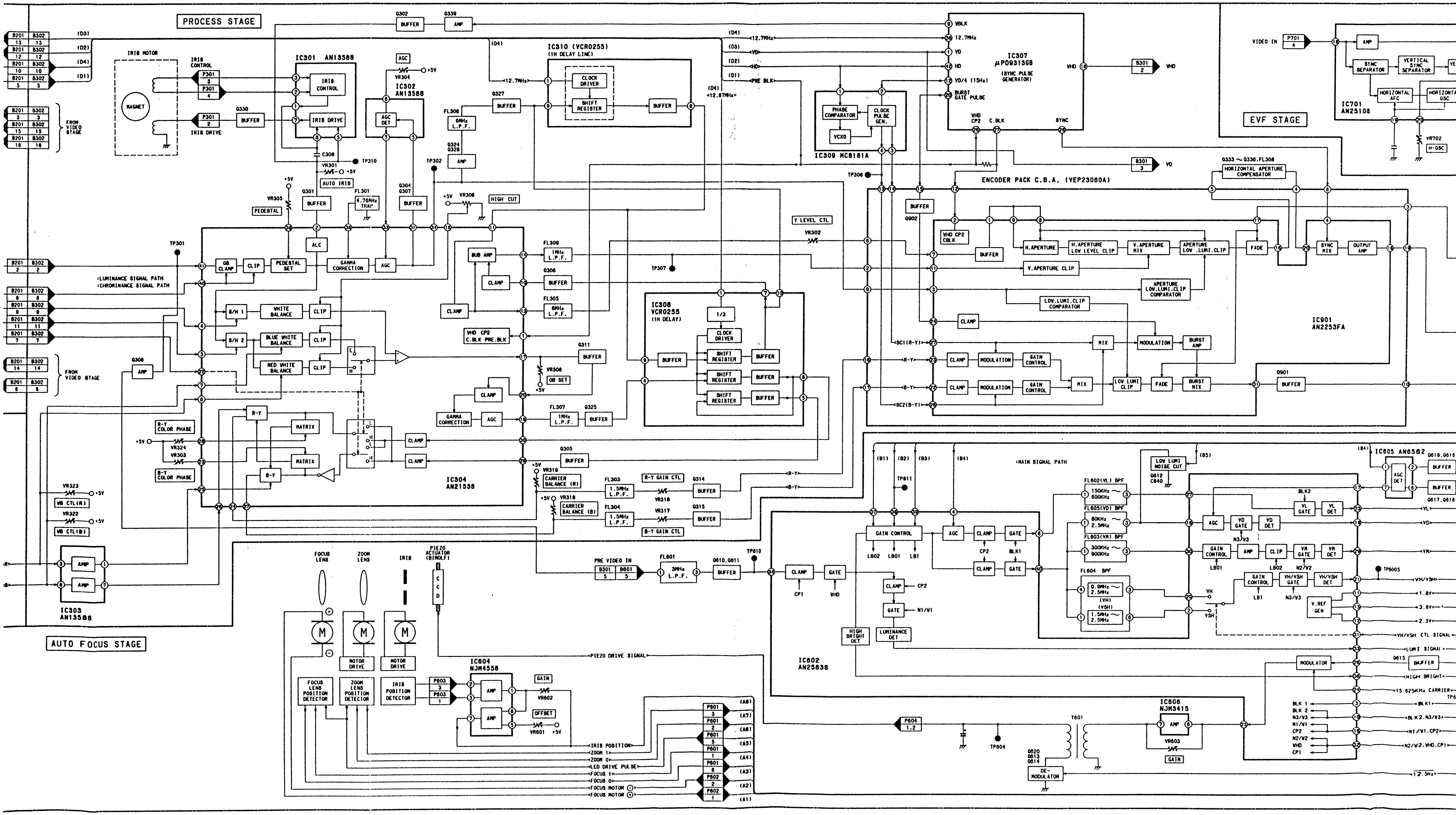
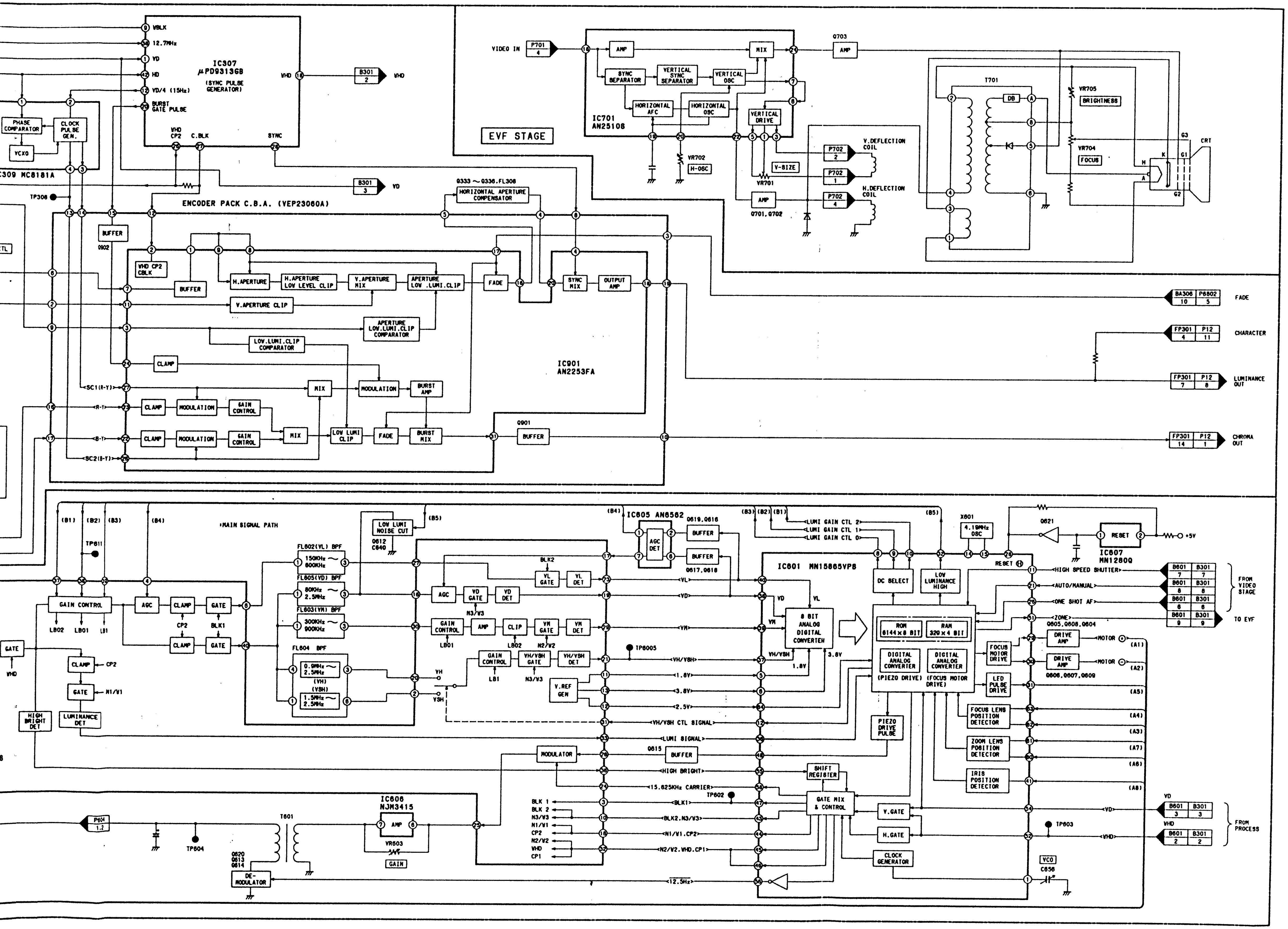


Fig. E18

SECTION 3
BLOCK DIAGRAMS & SCHEMATIC DIAGRAMS
3-1. CAMERA STAGE BLOCK DIAGRAM

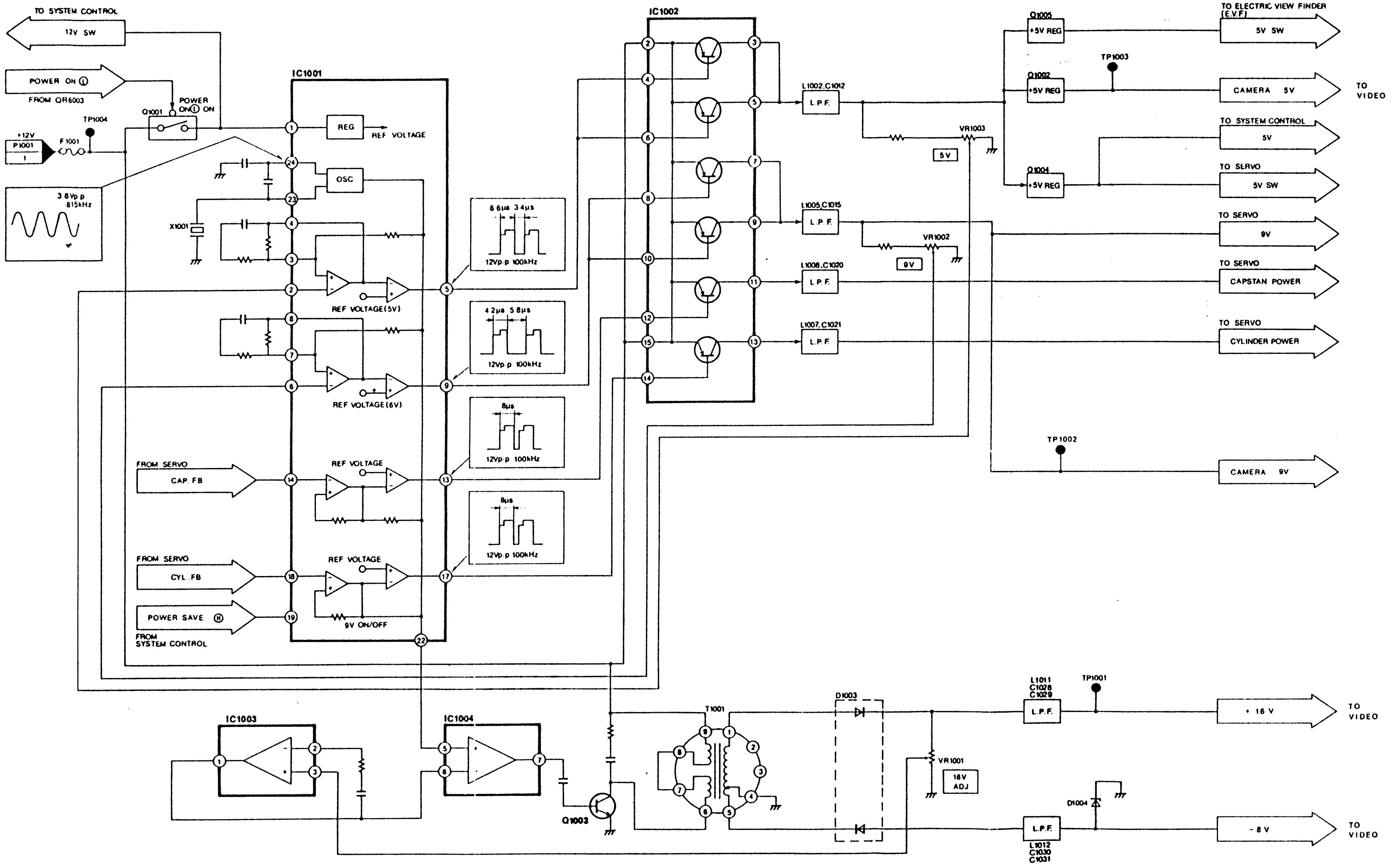

CCD DRIVE STAGE
PROCESS STAGE
AWB STAGE
AUTO FOCUS STAGE
IC202 (μPD6104 76)
IC201 (MN5103) (CCD DRIVE PULSE GENE.)
IC203 (MC6088B)
CCD IMAGE SENSOR DRIVE PULSE GENE.
3 STATE DRIVE
2 STATE DRIVE
LEVEL CONV.
GATE
OSC
1/2
SHUTTER SW
TO CCD IMAGE SENSOR
SUB
OV1
OVLG
OV2
OV3
OV4
OH1
OH2
OR
VIDEO OUT
Q203 BUFFER
VR201 BLOOMING ADJ
Q213 AMP
+15V
C206 CLOCK ADJ.
X201 (25.75MHz)
Q209,Q210 AMP
Q207,Q208 AMP
12.875MHz
Q204 BUFFER
TP201
S/H (CDS AMP)
FL201 20MHz L.P.F.
Q214 AMP
VR202 CDS OUT ADJ.
Q205,Q206 AMP
SHUTTER SPEED
PIN
NORMAL
1/250
1/500
1/1000
IC201-10
IC201-11
<VD>
<HD>
<12.87MHz>
<PRE BLK>
<+15V>
<-8V>
<-9V>
FROM VIDEO STAGE
<PRE VIDEO OUT>
<CPOB>
<SP2>
<SP1>
<fH/2>
<H.SPEED SHUTTER 1>
<H.SPEED SHUTTER 2>
B201
B302
(D3)
(D2)
(D4)
(D1)
IRIS MOTOR
MAGNET
IRIS CONTROL
IRIS DRIVE
P301
Q330 BUFFER
IC301 AN13588
IRIS CONTROL
IRIS DRIVE
C306
TP310
VR301 AUTO IRIS
Q301 BUFFER
FL301 4.76MHz TRAP
VR305 PEDESTAL
ALC
TP301
OB CLAMP
CLIP
PEDESTAL SET
GAMMA CORRECTION
AGC
:LUMINANCE SIGNAL PATH
:CHROMINANCE SIGNAL PATH
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
Q308 AMP
R-Y COLOR PHASE
B-Y COLOR PHASE
VR324
VR303
R-Y
B-Y
MATRIX
CLAMP
IC304 AN21538
Q302 BUFFER
Q339 AMP
AGC
VR304
IC302 AN13588
AGC DET
FL306 6MHz L.P.F.
Q324 Q328
TP302
AMP
Q304 Q307 BUFFER
VR306
SUB AMP
VHD CP2 C.BLK PRE.B
GAMMA CORRECTION
VR323 VB CTL(R)
VR322 VB CTL(B)
IC303 AN13588
:AWB BLUE GAIN SIGNAL PATH
:AWB RED GAIN SIGNAL PATH
IC305
PIN9
PIN10
INDOOR
AUTO
OUTDOOR
BA306
FROM SYSTEM CONTROL MICROPROCESSOR IC6001
TP312
Q303 BUFFER
QR302
TP304
IC306 AN1324NS
INDOOR(R)
VR314
<R-Y> FROM Q314
OUTDOOR(R)
VR313
DECODER
IC305 MN4052BS
IC104 AN13588
SENSOR LOW LIGHT
FP101
LOW LIGHT CTL
VR107
AWT SENSOR
IC102 AN1324NS
GAIN CTL(R)
VR103
IC101 AN1324NS
COLOR TEMP. CLIP CTL(R)
VR101
VR102
COLOR TEMP. CLIP CTL(B)
VR104
GAIN CTL(B)
IC103 AN13588
OFFSET CTL(B)
VR105
VR106
OFFSET CTL(G)
VR312
OUTDOOR(B)
<B-Y> FROM Q315
VR315
INDOOR(B)
IC306 AN1324NS
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECT
P603
IC604 NJM4558
AMP


PROCESS STAGE
IRIS MOTOR
MAGNET
IRIS CONTROL
IRIS DRIVE
FROM VIDEO STAGE
IC301 AN13588
IRIS CONTROL
IRIS DRIVE
Q330 BUFFER
VR301 AUTO IRIS
TP310
IC302 AN13588
AGC DET
AGC
VR304
Q302 BUFFER
Q339 AMP
IC310 (VCR0255) (1H DELAY LINE)
CLOCK DRIVER
SHIFT REGISTER
BUFFER
Q327 BUFFER
FL306 6MHz L.P.F.
Q324 Q328 AMP
TP302
VR305 PEDESTAL
Q301 BUFFER
FL301 4.78MHz TRAP
Q304 Q307 BUFFER
VR306 HIGH CUT
TP301
OB CLAMP
CLIP
PEDESTAL SET
ALC
GAMMA CORRECTION
AGC
LUMINANCE SIGNAL PATH
CHROMINANCE SIGNAL PATH
S/H 1
S/H 2
WHITE BALANCE
BLUE WHITE BALANCE
RED WHITE BALANCE
CLIP
Q308 AMP
R-Y
B-Y
MATRIX
R-Y COLOR PHASE
B-Y COLOR PHASE
VR324
VR303
VR323 WB CTL(R)
VR322 WB CTL(B)
SUB AMP
CLAMP
FL309 1MHz L.P.F.
Q306 BUFFER
FL305 6MHz L.P.F.
VHD CP2 C.BLK PRE.BLK
Q311 BUFFER
VR308 OB SET
GAMMA CORRECTION
AGC
FL307 1MHz L.P.F.
Q325 BUFFER
Q305 BUFFER
IC304 AN21538
VR319 CARRIER BALANCE (R)
VR318 CARRIER BALANCE (B)
FL303 1.5MHz L.P.F.
FL304 1.5MHz L.P.F.
R-Y GAIN CTL
VR316
VR317
B-Y GAIN CTL
Q314 BUFFER
Q315 BUFFER
IC308 VCR0255 (1H DELAY)
1/3
CLOCK DRIVER
SHIFT REGISTER
BUFFER
TP307
Y LEVEL CTL
VR302
IC307 μPD9313GB (SYNC PULSE GENERATOR)
VBLK
12.7MHz
VD
HD
VD/4 (15Hz)
BURST GATE PULSE
VHD CP2
C.BLK
SYNC
IC309 MC8181A
PHASE COMPARATOR
VCXO
CLOCK PULSE GEN.
TP306
B301 VHD
B301 VD
ENCODER PACK C.B.A. (VEP23060A)
Q902 BUFFER
VHD CP2 CBLK
BUFFER
H.APERTURE
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW.LUMI.CLIP
FADE
SYNC MIX
OUTPUT AMP
V.APERTURE CLIP
APERTURE LOW.LUMI.CLIP COMPARATOR
LOW.LUMI.CLIP COMPARATOR
CLAMP
MODULATION
GAIN CONTROL
MIX
BURST AMP
BURST MIX
LOW LUMI CLIP
Q901 BUFFER
IC901 AN2253FA
Q333 ~ Q336.FL308 HORIZONTAL APERTURE COMPENSATOR
EVF STAGE
VIDEO IN
P701
AMP
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
HORIZONTAL AFC
HORIZONTAL OSC
IC701 AN25108
VR702 H-OSC
IC303 AN13588
AMP
AUTO FOCUS STAGE
FOCUS LENS
ZOOM LENS
IRIS
PIEZO ACTUATOR (BIMOLF)
CCD
M
MOTOR DRIVE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
PIEZO DRIVE SIGNAL
IC604 NJM4558
AMP
GAIN VR602
OFFSET VR601
IRIS POSITION
ZOOM 1
ZOOM 0
LED DRIVE PULSE
FOCUS 1
FOCUS 0
FOCUS MOTOR ⊖
FOCUS MOTOR ⊕
P601
P602
P603
PRE VIDEO IN
B301 B601
FL601 3MHz L.P.F.
Q610,Q611 BUFFER
TP610
CLAMP
GATE
CP1
VHD
TP611
GAIN CONTROL
AGC
HIGH BRIGHT DET
LUMINANCE DET
N1/V1
IC602 AN25838
MAIN SIGNAL PATH
LOW LUMI NOISE CUT
Q612 C640
FL602(VL) BPF 150KHz ~ 600KHz
FL605(VD) BPF 80KHz ~ 2.5MHz
FL603(VH) BPF 300KHz ~ 900KHz
FL604 BPF 0.9MHz ~ 2.5MHz (VH) (VSH) 1.5MHz ~ 2.5MHz
VD GATE
VD DET
YL GATE
YL DET
BLK2
N3/V3
GAIN CONTROL
AMP
CLIP
VH GATE
VH DET
N2/V2
VH/VSH GATE
VH/VSH DET
V.REF GEN
IC605 AN6562
AGC DET
Q619,Q615 BUFFER
Q617,Q618 BUFFER
TP6005
VH/VSH
1.8V
3.8V
2.5V
VH/VSH CTL SIGNAL
LUMI SIGNAL
Q615 BUFFER
MODULATOR
HIGH BRIGHT
15.625KHz CARRIER
BLK1
BLK2
N3/V3
N1/V1
CP2
N2/V2
VHD
CP1
IC606 NJM3415
AMP
VR603 GAIN
T601
P604
TP604
Q620 Q613 Q614 DE-MODULATOR
12.5Hz


IC307
µPD9313GB
(SYNC PULSE GENERATOR)
VBLK
12.7MHz
VD
HD
VD/4 (15Hz)
BURST GATE PULSE
VHD
CP2
C.BLK
SYNC
B301 2
B301 3
PHASE COMPARATOR
CLOCK PULSE GEN.
VCXO
IC309 MC8181A
TP306
ENCODER PACK C.B.A. (VEP23060A)
Q333 ~ Q336, FL308
HORIZONTAL APERTURE COMPENSATOR
BUFFER
Q902
VHD CP2 CBLK
H.APERTURE
H.APERTURE LOW LEVEL CLIP
V.APERTURE MIX
APERTURE LOW .LUMI.CLIP
FADE
SYNC MIX
OUTPUT AMP
V.APERTURE CLIP
APERTURE LOW.LUMI.CLIP COMPARATOR
LOW.LUMI.CLIP COMPARATOR
CLAMP
IC901
AN2253FA
SC1(R-Y)
R-Y
B-Y
SC2(B-Y)
MODULATION
GAIN CONTROL
MIX
BURST AMP
LOW LUMI CLIP
BURST MIX
Q901
EVF STAGE
VIDEO IN
P701 4
AMP
MIX
Q703
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
IC701
AN2510S
VR702
H-OSC
V-SIZE
VR701
Q701, Q702
P702
V.DEFLECTION COIL
H.DEFLECTION COIL
T701
DB
VR705
BRIGHTNESS
VR704
FOCUS
CRT
G3
G1
G2
K
H
A
BA306 P6802 10 5
FADE
FP301 P12 4 11
CHARACTER
FP301 P12 7 8
LUMINANCE OUT
FP301 P12 14 1
CHROMA OUT
(B1) (B2) (B3) (B4)
MAIN SIGNAL PATH
TP611
GAIN CONTROL
LB02 LB01 LB1
AGC
CLAMP
GATE
CP2
BLK1
N1/V1
LUMINANCE DET
HIGH BRIGHT DET
LOW LUMI NOISE CUT
Q612 C640
(B5)
FL602(VL) BPF 150KHz 600KHz
FL605(VD) BPF 80KHz 2.5MHz
FL603(VH) BPF 300KHz 900KHz
FL604 BPF 0.9MHz 2.5MHz (VH) (VSH) 1.5MHz 2.5MHz
IC605 AN6562
AGC DET
BUFFER
Q619, Q616
Q617, Q618
BLK2
VL GATE
VL DET
VD GATE
VD DET
N3/V3
CLIP
VH GATE
VH DET
LB02
N2/V2
VH/VSH GATE
VH/VSH DET
V.REF GEN
VH
VSH
TP6005
IC601 MN15865VPB
LUMI GAIN CTL 2
LUMI GAIN CTL 1
LUMI GAIN CTL 0
X601 4.19MHz OSC
Q621
RESET
IC607 MN1280Q
+5V
DC SELECT
LOW LUMINANCE HIGH
8 BIT ANALOG DIGITAL CONVERTER
ROM 6144×8 BIT
RAM 320×4 BIT
DIGITAL ANALOG CONVERTER (PIEZO DRIVE)
DIGITAL ANALOG CONVERTER (FOCUS MOTOR DRIVE)
FOCUS MOTOR DRIVE
LED PULSE DRIVE
PIEZO DRIVE PULSE
FOCUS LENS POSITION DETECTOR
ZOOM LENS POSITION DETECTOR
IRIS POSITION DETECTOR
HIGH SPEED SHUTTER
AUTO/MANUAL
ONE SHOT AF
ZONE
B601 B301
FROM VIDEO STAGE
TO EVF
DRIVE AMP
Q605, Q608, Q604
Q606, Q607, Q609
MOTOR
(A1) (A2) (A5) (A4) (A3) (A7) (A6) (A8)
VL VD VH VH/VSH
1.8V 3.8V 2.5V
VH/VSH CTL SIGNAL
LUMI SIGNAL
MODULATOR
Q615
HIGH BRIGHT
15.625KHz CARRIER
TP602
SHIFT REGISTER
GATE MIX & CONTROL
V.GATE
H.GATE
CLOCK GENERATOR
TP603
VCO
C656
FROM PROCESS
IC606 NJM3415
VR603
GAIN
BLK 1
BLK 2
N3/V3
N1/V1
CP2
N2/V2
VHD
CP1
BLK2.N3/V3
N1/V1.CP2
N2/V2.VHD.CP1
12.5Hz
T601
P604 1.2
TP604
Q620 Q613 Q614
DE-MODULATOR

Next Page:
POWER SUPPLY &
SYSTEM CONTROL Section

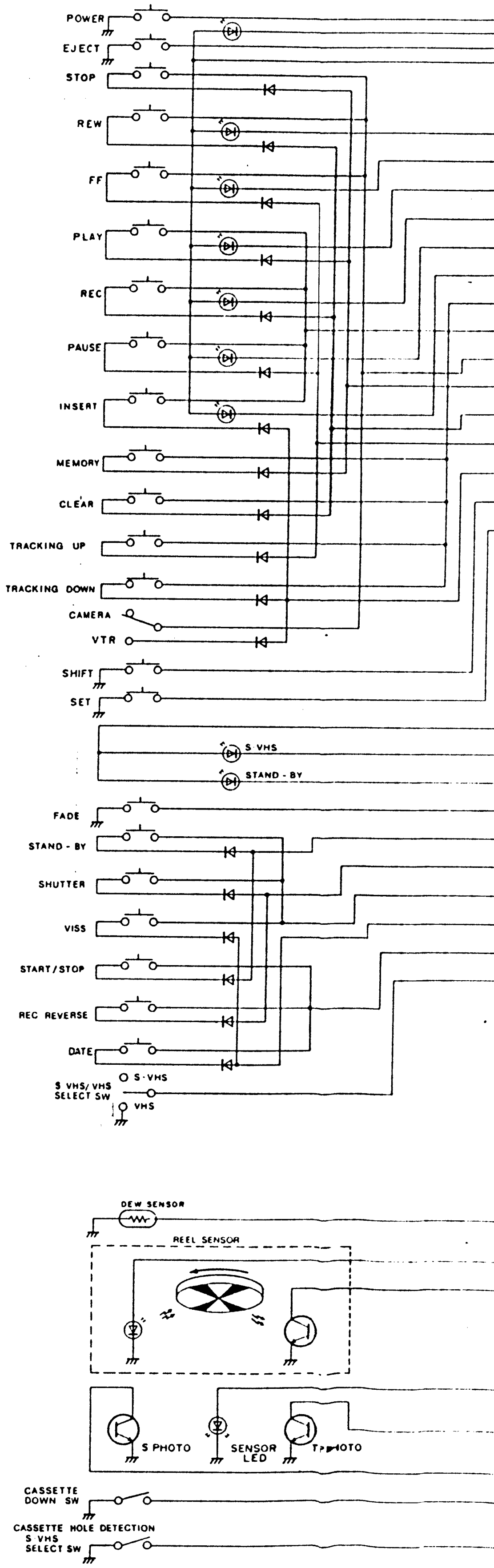
3-2. POWER SUPPLY BLOCK DIAGRAM


TO SYSTEM CONTROL
12V SW
POWER ON Ⓛ
FROM QR6003
POWER ON Ⓛ ON
Q1001
TP1004
+12V
P1001
1
F1001
3.8Vp-p
815kHz
IC1001
REG
REF VOLTAGE
OSC
X1001
REF VOLTAGE (5V)
REF VOLTAGE (6V)
FROM SERVO
CAP. FB
REF VOLTAGE
FROM SERVO
CYL. FB
REF VOLTAGE
POWER SAVE Ⓗ
FROM SYSTEM CONTROL
9V ON/OFF
6.6μs 3.4μs
12Vp-p 100kHz
4.2μs 5.8μs
12Vp-p 100kHz
8μs
12Vp-p 100kHz
8μs
12Vp-p 100kHz
IC1002
L1002, C1012
L.P.F.
L1005, C1015
L.P.F.
L1006, C1020
L.P.F.
L1007, C1021
L.P.F.
VR1003
5V
VR1002
9V
Q1005
+5V REG
Q1002
+5V REG
Q1004
+5V REG
TP1003
TO ELECTRIC VIEW FINDER (E.V.F)
5V SW
CAMERA 5V
TO VIDEO
TO SYSTEM CONTROL
5V
TO SERVO
5V SW
TO SERVO
9V
TO SERVO
CAPSTAN POWER
TO SERVO
CYLINDER POWER
TP1002
CAMERA 9V
IC1003
IC1004
Q1003
T1001
D1003
VR1001
18V ADJ
L1011 C1028 C1029
L.P.F.
TP1001
+16V
TO VIDEO
D1004
L.P.F.
L1012 C1030 C1031
-8V
TO VIDEO

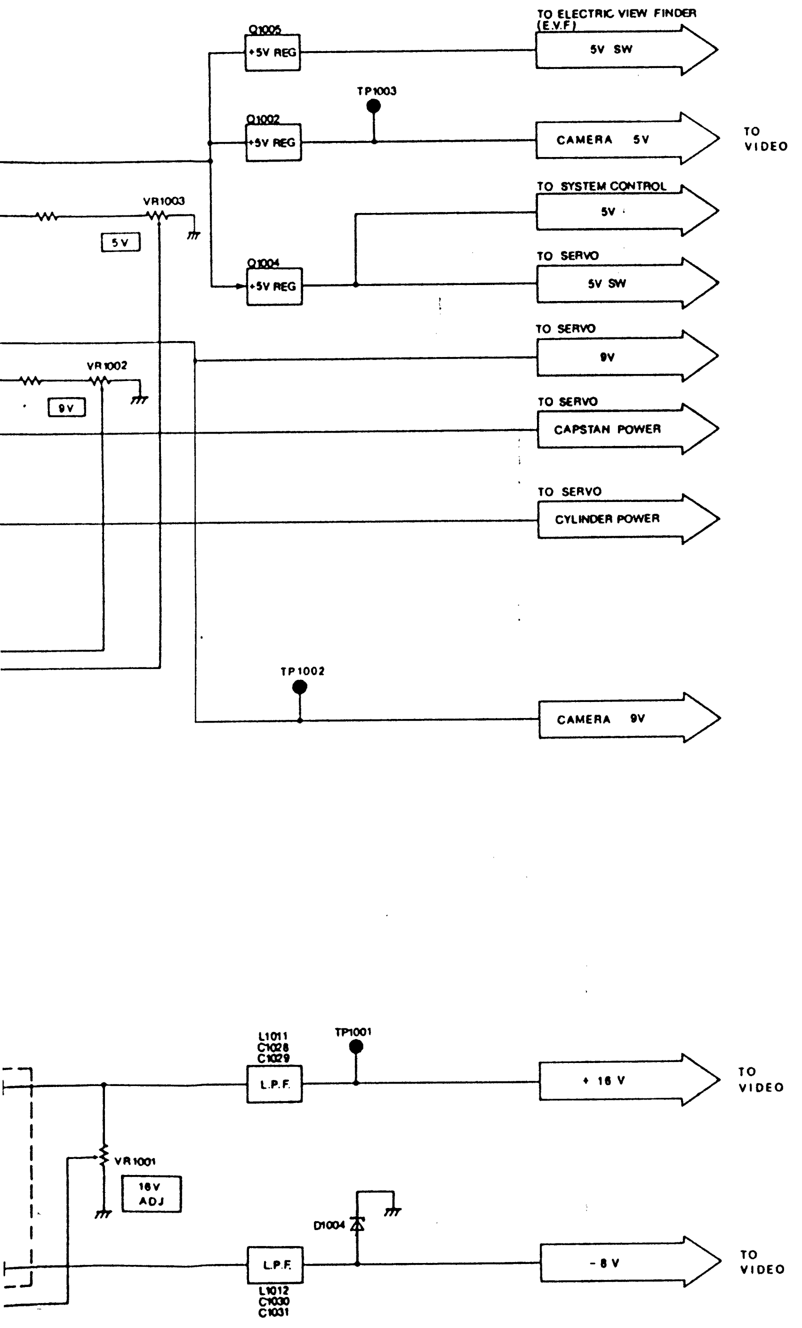
3-3. SYSTEM CONTROL BLOCK DIAGRAM

MICROCOMPUTER I/O CHART
(IC6001: MN15361VNU)

PIN	I/O	NAME/OPERATION
1	OUT	LOAD Ⓗ
2	OUT	UNLOAD Ⓗ
3	IN	HQ
4	OUT	REC DATA
5	OUT	NON REC DATA
6	OUT	SCAN OUT
7	OUT	
8	OUT	ROS 2
9	IN	ROS 1
10	—	VSS
11	—	NOT USED
12	—	NOT USED
13	OUT	SCAN OUT
14	IN	OSC 1
15	OUT	OSC 2
16	OUT	SCAN OUT
17	OUT	REC LED Ⓛ
18	OUT	PLAY LED Ⓛ
19	OUT	FF LED Ⓛ
20	OUT	REW LED Ⓛ
21	OUT	POWER LED Ⓛ
22	—	NOT USED
23	—	NOT USED
24	OUT	STAND BY LED Ⓛ
25	OUT	PAUSE LED Ⓛ
26	OUT	INSERT LED Ⓛ
27	—	NOT USED
28	—	NOT USED
29	IN	IRQ
30	OUT	SERIAL CLOCK OUT
31	IN/OUT	SERILA DATA IN/OUT
32	IN	RESET Ⓛ
33	OUT	TRACKING DOWN
34	OUT	TRACKING UP
35	OUT	SERIAL CLOCK
36	OUT	SERIAL DATA
37	OUT	POWER ON Ⓗ
38	OUT	POWER SAVE Ⓗ
39	OUT	CAMERA POWER ON Ⓗ
40	OUT	COMMON
41	—	NOT USED
42	—	NOT USED
43	IN	OUT Ⓗ/AWT Ⓜ/IN Ⓛ
44	IN	DEW SENSOR Ⓛ
45	IN	SW 1
46	IN	REEL SENSOR
47	IN	SCAN IN
48	IN	
49	IN	
50	IN	
51	IN	
52	IN	
53	—	VDD
54	IN	SCAN IN
55	OUT	CLOCK OUT
56	OUT	EE Ⓗ/VV Ⓛ
57	OUT	PLAY Ⓛ
58	OUT	AUDIO EE Ⓗ
59	OUT	AUDIO MUTE Ⓗ
60	OUT	SHUTTER 1
61	OUT	SHUTTER 2
62	OUT	TARRY Ⓛ
63	IN	V REF 1
64	—	NOT USED
65	—	NOT USED
66	IN	TAKE UP PHOTO
67	IN	SUPPLY PHOTO
68	IN	POWER SW ON Ⓛ
69	IN	POWER OFF Ⓛ
70	OUT	VIDEO DELAYED REC Ⓛ
71	OUT	AUDIO DELAYED REC Ⓛ
72	OUT	ROTARY ERASE Ⓛ
73	OUT	SENSOR LED
74	IN	V REF 2
75	OUT	CONTROL DUTY Ⓛ
76	OUT	CYLINDER ON Ⓗ
77	OUT	FULL ERASE Ⓗ
78	OUT	SP Ⓗ/LP Ⓛ
79	OUT	REV Ⓗ/FWD Ⓜ/STOP Ⓛ
80	OUT	REC Ⓗ/P.B Ⓜ/MEMORY Ⓛ
81	OUT	V 0
82	OUT	V 1
83	—	NOT USED
84	—	NOT USED

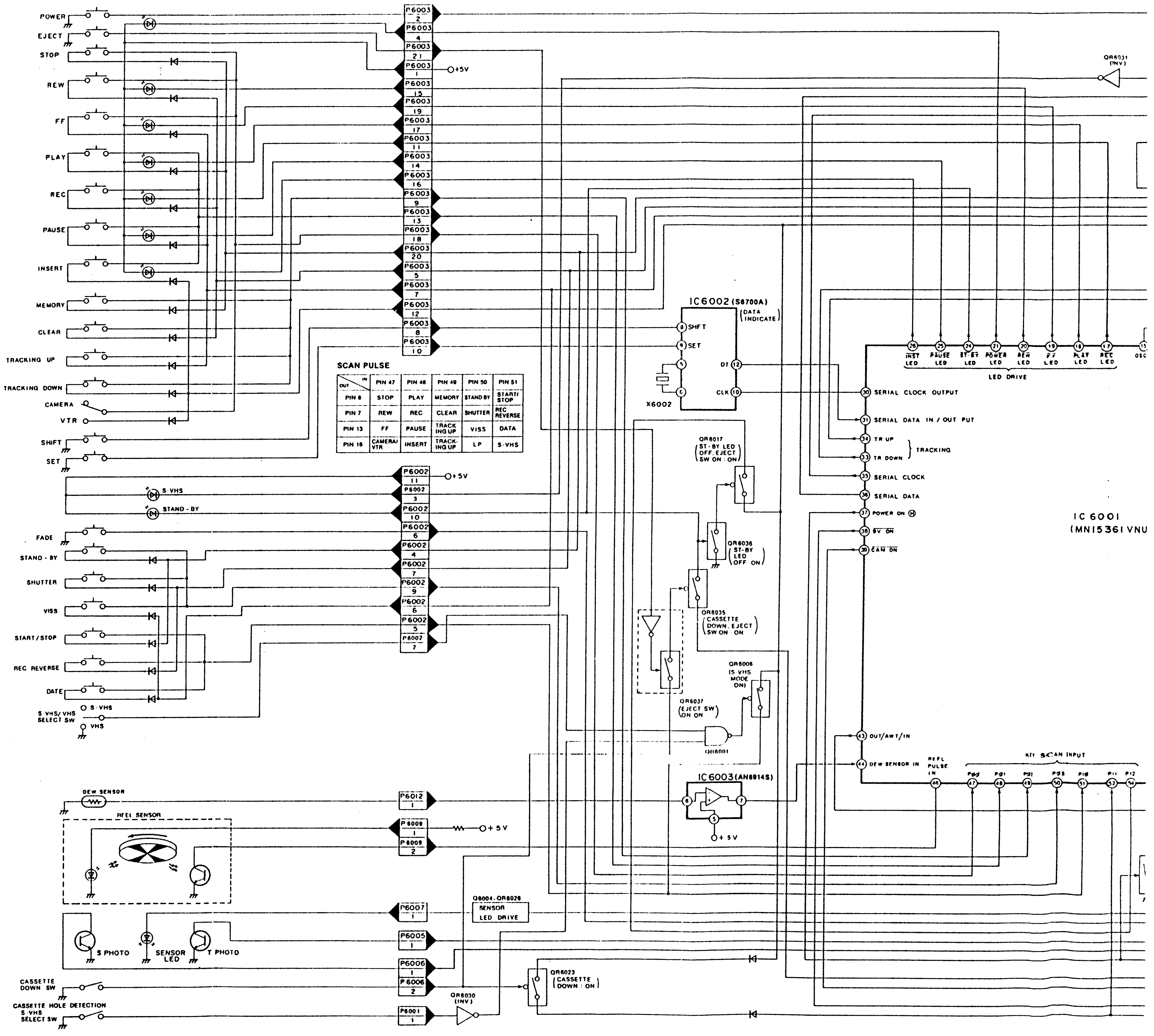

POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INSERT
MEMORY
CLEAR
TRACKING UP
TRACKING DOWN
CAMERA
VTR
SHIFT
SET
S VHS
STAND-BY
FADE
STAND-BY
SHUTTER
VISS
START/STOP
REC REVERSE
DATE
S VHS/VHS SELECT SW
O S-VHS
VHS
DEW SENSOR
REEL SENSOR
S PHOTO
SENSOR LED
T PHOTO
CASSETTE DOWN SW
CASSETTE HOLE DETECTION S VHS SELECT SW

3-3. SYSTEM CONTROL BLOCK DIAGRAM


Q1005
+5V REG
TO ELECTRIC VIEW FINDER (E.V.F)
5V SW
TP1003
Q1002
+5V REG
CAMERA 5V
TO VIDEO
VR1003
5V
TO SYSTEM CONTROL
5V
Q1004
+5V REG
TO SERVO
5V SW
TO SERVO
9V
VR1002
9V
TO SERVO
CAPSTAN POWER
TO SERVO
CYLINDER POWER
TP1002
CAMERA 9V
L1011
C1028
C1029
TP1001
L.P.F.
+ 16 V
TO VIDEO
VR1001
16V ADJ
D1004
L.P.F.
L1012
C1030
C1031
- 8 V
TO VIDEO

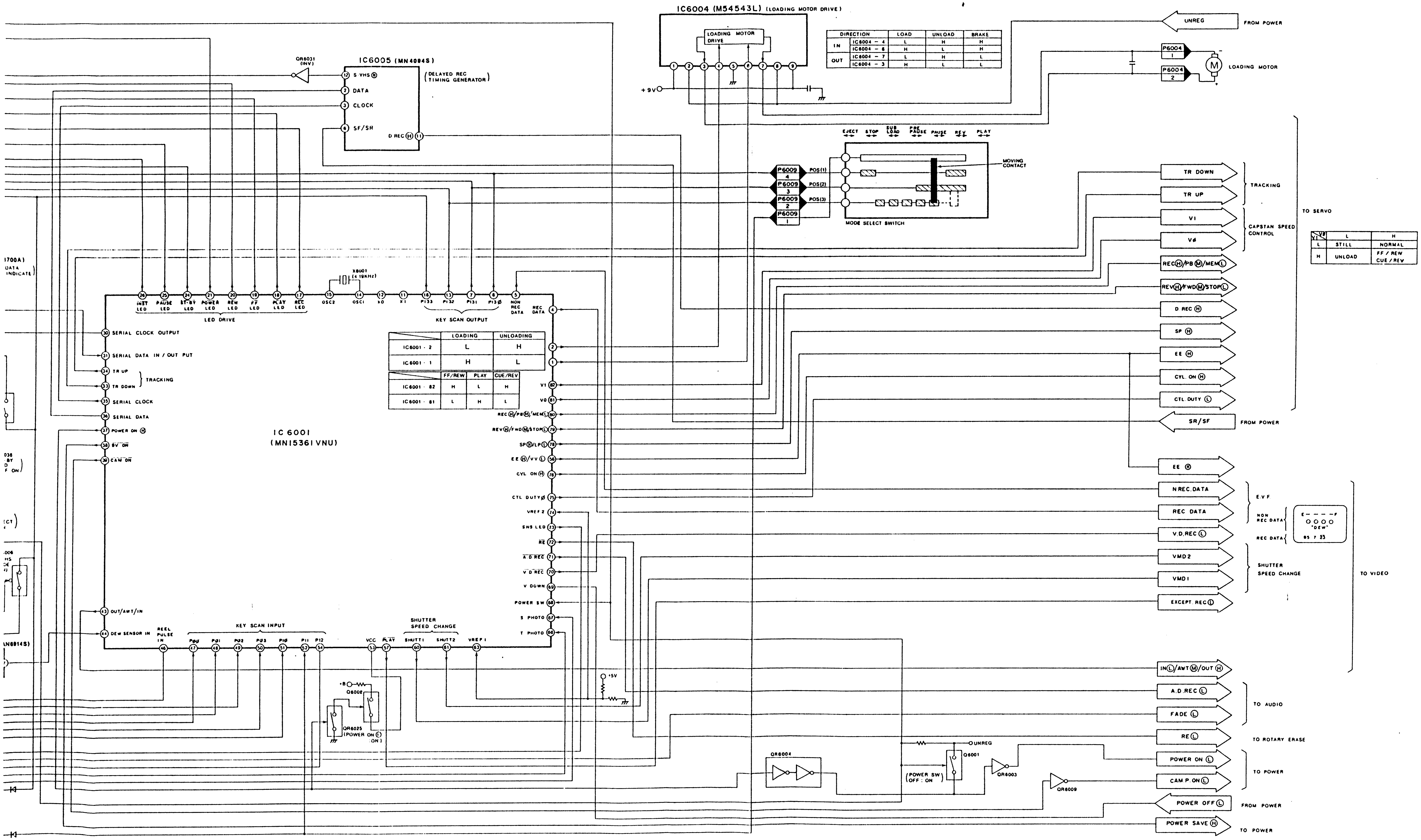
MICROCOMPUTER I/O CHART
(IC6001: MN15361VNU)

PIN	I/O	NAME/OPERATION
1	OUT	LOAD Ⓗ
2	OUT	UNLOAD Ⓗ
3	IN	HQ
4	OUT	REC DATA
5	OUT	NON REC DATA
6	OUT	SCAN OUT
7	OUT	
8	OUT	ROS 2
9	IN	ROS 1
10	—	VSS
11	—	NOT USED
12	—	NOT USED
13	OUT	SCAN OUT
14	IN	OSC 1
15	OUT	OSC 2
16	OUT	SCAN OUT
17	OUT	REC LED Ⓛ
18	OUT	PLAY LED Ⓛ
19	OUT	FF LED Ⓛ
20	OUT	REW LED Ⓛ
21	OUT	POWER LED Ⓛ
22	—	NOT USED
23	—	NOT USED
24	OUT	STAND-BY LED Ⓛ
25	OUT	PAUSE LED Ⓛ
26	OUT	INSERT LED Ⓛ
27	—	NOT USED
28	—	NOT USED
29	IN	IRQ
30	OUT	SERIAL CLOCK OUT
31	IN/OUT	SERILA DATA IN/OUT
32	IN	RESET Ⓛ
33	OUT	TRACKING DOWN
34	OUT	TRACKING UP
35	OUT	SERIAL CLOCK
36	OUT	SERIAL DATA
37	OUT	POWER ON Ⓗ
38	OUT	POWER SAVE Ⓗ
39	OUT	CAMERA POWER ON Ⓗ
40	OUT	COMMON
41	—	NOT USED
42	—	NOT USED
43	IN	OUT Ⓗ/AWT Ⓜ/IN Ⓛ
44	IN	DEW SENSOR Ⓛ
45	IN	SW 1
46	IN	REEL SENSOR
47	IN	SCAN IN
48	IN	
49	IN	
50	IN	
51	IN	
52	IN	
53	—	VDD
54	IN	SCAN IN
55	OUT	CLOCK OUT
56	OUT	EE Ⓗ/VV Ⓛ
57	OUT	PLAY Ⓛ
58	OUT	AUDIO EE Ⓗ
59	OUT	AUDIO MUTE Ⓗ
60	OUT	SHUTTER 1
61	OUT	SHUTTER 2
62	OUT	TARRY Ⓛ
63	IN	V REF 1
64	—	NOT USED
65	—	NOT USED
66	IN	TAKE UP PHOTO
67	IN	SUPPLY PHOTO
68	IN	POWER SW ON Ⓛ
69	IN	POWER OFF Ⓛ
70	OUT	VIDEO DELAYED REC Ⓛ
71	OUT	AUDIO DELAYED REC Ⓛ
72	OUT	ROTARY ERASE Ⓛ
73	OUT	SENSOR LED
74	IN	V REF 2
75	OUT	CONTROL DUTY Ⓛ
76	OUT	CYLINDER ON Ⓗ
77	OUT	FULL ERASE Ⓗ
78	OUT	SP Ⓗ/LP Ⓛ
79	OUT	REV Ⓗ/FWD Ⓜ/STOP Ⓛ
80	OUT	REC Ⓗ/P.B Ⓜ/MEMORY Ⓛ
81	OUT	V 0
82	OUT	V 1
83	—	NOT USED
84	—	NOT USED


POWER
EJECT
STOP
REW
FF
PLAY
REC
PAUSE
INSERT
MEMORY
CLEAR
TRACKING UP
TRACKING DOWN
CAMERA
VTR
SHIFT
SET
P6003
+5V
S-VHS
STAND-BY
P6002
FADE
STAND-BY
SHUTTER
VISS
START/STOP
REC REVERSE
DATE
S-VHS
S-VHS/VHS SELECT SW
VHS
DEW SENSOR
REEL SENSOR
P6012
P6009
+5V
P6007
S PHOTO
SENSOR LED
T PHOTO
P6005
P6006
CASSETTE DOWN SW
CASSETTE HOLE DETECTION
S-VHS SELECT SW
P6001
Q6004, QR6026
SENSOR LED DRIVE
QR6030 (INV)
QR6023 (CASSETTE DOWN : ON)
IC6002 (S6700A)
(DATA INDICATE)
SHFT
SET
DT
CLK
X6002
QR6017 (ST-BY LED OFF, EJECT SW ON : ON)
QR6036 (ST-BY LED OFF ON)
QR6035 (CASSETTE DOWN, EJECT SW ON ON)
QR6006 (S-VHS MODE ON)
QR6037 (EJECT SW ON ON)
QR6001
IC6003 (AN6914S)
+5V
QR6031 (INV)
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
OSC
LED DRIVE
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON Ⓗ
9V ON
CAM ON
IC 6001 (MN15361VNU
OUT/AWT/IN
DEW SENSOR IN
REFL PULSE IN
KEY SCAN INPUT

SCAN PULSE

OUT \ IN	PIN 47	PIN 48	PIN 49	PIN 50	PIN 51
PIN 6	STOP	PLAY	MEMORY	STAND BY	START/ STOP
PIN 7	REW	REC	CLEAR	SHUTTER	REC REVERSE
PIN 13	FF	PAUSE	TRACK-ING UP	VISS	DATA
PIN 16	CAMERA/ VTR	INSERT	TRACK-ING UP	LP	S·VHS


IC6004 (M54543L) (LOADING MOTOR DRIVE)
LOADING MOTOR DRIVE
+9V
UNREG
FROM POWER
P6004 1
P6004 2
M
LOADING MOTOR
QR6031 (INV)
IC6005 (MN4094S)
S VHS Ⓗ
DATA
CLOCK
SF/SR
D REC Ⓗ
(DELAYED REC TIMING GENERATOR)
EJECT
STOP
SUB LOAD
PRE PAUSE
PAUSE
REV
PLAY
MOVING CONTACT
P6009 4
P6009 3
P6009 2
P6009 1
POS(1)
POS(2)
POS(3)
MODE SELECT SWITCH
TR DOWN
TR UP
TRACKING
V1
Vϕ
CAPSTAN SPEED CONTROL
TO SERVO
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
D. REC Ⓗ
SP Ⓗ
EE Ⓗ
CYL. ON Ⓗ
CTL. DUTY Ⓛ
SR/SF
FROM POWER
EE Ⓗ
N.REC.DATA
REC DATA
V.D.REC Ⓛ
VMD2
VMD1
EXCEPT. REC Ⓛ
E.V.F
NON REC DATA
REC DATA
E - - - - F
○○○○
"DEW"
85 7 23
SHUTTER SPEED CHANGE
TO VIDEO
IN Ⓛ/AWT Ⓜ/OUT Ⓗ
A.D.REC Ⓛ
FADE Ⓛ
TO AUDIO
RE Ⓛ
TO ROTARY ERASE
POWER ON Ⓛ
CAM.P.ON Ⓛ
TO POWER
POWER OFF Ⓛ
FROM POWER
POWER SAVE Ⓗ
TO POWER
QR6004
UNREG
Q6001
(POWER SW OFF : ON)
QR6003
QR6009
1700A)
DATA INDICATE)
038
BY
D
F ON)
ECT)
006
HS
AN6814S)
INST LED
PAUSE LED
ST-BY LED
POWER LED
REW LED
FF LED
PLAY LED
REC LED
LED DRIVE
OSC2
OSC1
X0
X1
X6001 (4.19KHz)
P133
P132
P131
P13ϕ
KEY SCAN OUTPUT
NON REC DATA
REC DATA
SERIAL CLOCK OUTPUT
SERIAL DATA IN / OUT PUT
TR UP
TR DOWN
TRACKING
SERIAL CLOCK
SERIAL DATA
POWER ON Ⓗ
9V ON
CAM ON
IC 6001 (MN15361VNU)
V1
V0
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
SP Ⓗ/LP Ⓛ
EE Ⓗ/VV Ⓛ
CYL ON Ⓗ
CTL DUTYϕ
VREF 2
SNS LED
RE
A.D.REC
V.D.REC
V DOWN
POWER SW
S PHOTO
T PHOTO
OUT/AWT/IN
DEW SENSOR IN
REEL PULSE IN
KEY SCAN INPUT
Pϕϕ
Pϕ1
Pϕ2
Pϕ3
P1ϕ
P11
P12
VCC
PLAY
SHUTTER SPEED CHANGE
SHUTT1
SHUTT2
VREF1
+B
Q6002
QR6025 (POWER ON Ⓛ : ON)
+5V

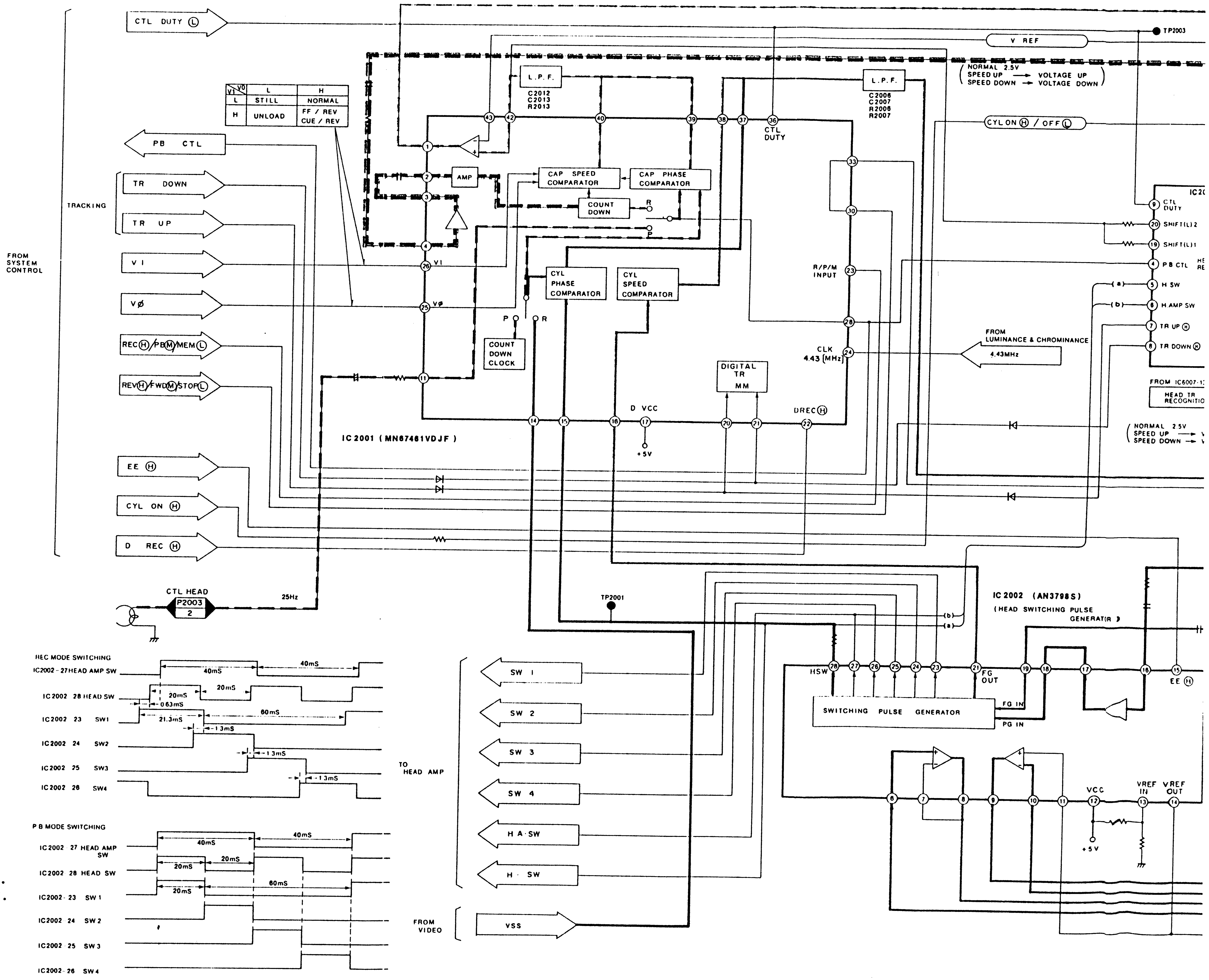
DIRECTION		LOAD	UNLOAD	BRAKE
IN	IC6004 - 4	L	H	H
	IC6004 - 6	H	L	H
OUT	IC6004 - 7	L	H	L
	IC6004 - 3	H	L	L

	LOADING	UNLOADING
IC6001 · 2	L	H
IC6001 · 1	H	L

	FF/REW	PLAY	CUE/REV
IC6001 · 82	H	L	H
IC6001 · 81	L	H	L

V1 \ V0	L	H
L	STILL	NORMAL
H	UNLOAD	FF / REW CUE / REV

3-4. SERVO BLOCK DIAGRAM

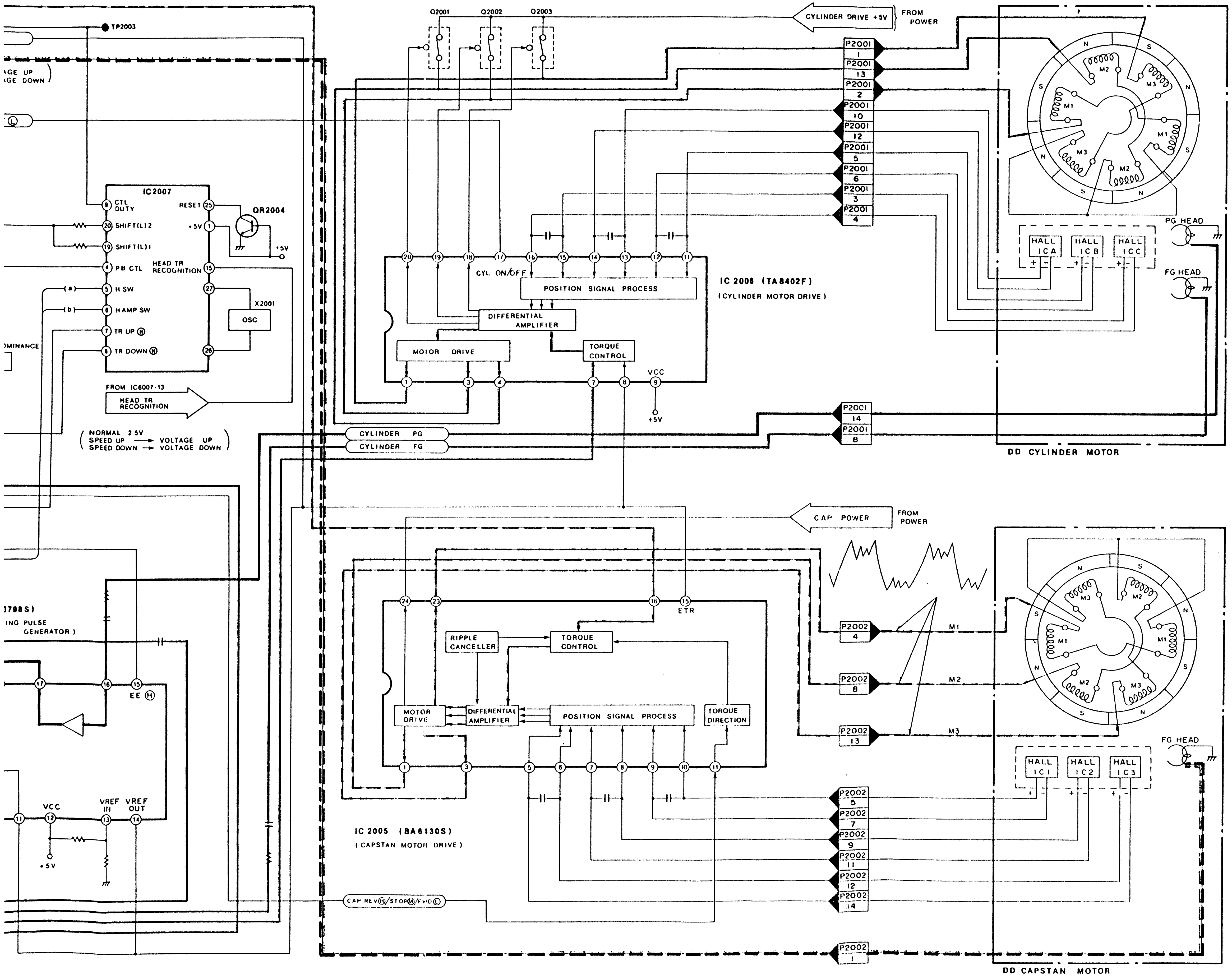

CTL DUTY Ⓛ
PB CTL
TR DOWN
TR UP
TRACKING
FROM SYSTEM CONTROL
V I
VØ
REC Ⓗ/PB Ⓜ/MEM Ⓛ
REV Ⓗ/FWD Ⓜ/STOP Ⓛ
EE Ⓗ
CYL ON Ⓗ
D REC Ⓗ
V1 V0 L H
L STILL NORMAL
H UNLOAD FF / REV CUE / REV
L.P.F.
C2012 C2013 R2013
L.P.F.
C2006 C2007 R2006 R2007
AMP
CAP SPEED COMPARATOR
CAP PHASE COMPARATOR
COUNT DOWN
CYL PHASE COMPARATOR
CYL SPEED COMPARATOR
COUNT DOWN CLOCK
DIGITAL TR MM
CTL DUTY
R/P/M INPUT
CLK 4.43 (MHz)
D VCC
+5V
DREC Ⓗ
IC 2001 (MN67461VDJF)
V REF
TP2003
NORMAL 2.5V
SPEED UP → VOLTAGE UP
SPEED DOWN → VOLTAGE DOWN
CYL ON Ⓗ / OFF Ⓛ
FROM LUMINANCE & CHROMINANCE
4.43MHz
IC20
CTL DUTY
SHIFT(L)2
SHIFT(L)1
PB CTL
H SW
H AMP SW
TR UP Ⓗ
TR DOWN Ⓗ
FROM IC6007-1
HEAD TR RECOGNITIO
NORMAL 2.5V
SPEED UP →
SPEED DOWN →
CTL HEAD
P2003
2
25Hz
TP2001
IC 2002 (AN3798S)
(HEAD SWITCHING PULSE GENERATIR)
HSW
FG OUT
FG IN
PG IN
SWITCHING PULSE GENERATOR
EE Ⓗ
VCC
+5V
VREF IN
VREF OUT
SW 1
SW 2
SW 3
SW 4
H A SW
H SW
TO HEAD AMP
FROM VIDEO
VSS
REC MODE SWITCHING
IC2002-27HEAD AMP SW
IC2002 28 HEAD SW
IC2002 23 SW1
IC2002 24 SW2
IC2002 25 SW3
IC2002 26 SW4
40mS
20mS
0.63mS
21.3mS
60mS
1.3mS
PB MODE SWITCHING
IC2002 27 HEAD AMP SW
IC2002 28 HEAD SW
IC2002-23 SW1
IC2002 24 SW2
IC2002 25 SW3
IC2002-26 SW4

——— CYLINDER SERVO SPEED LOOP.

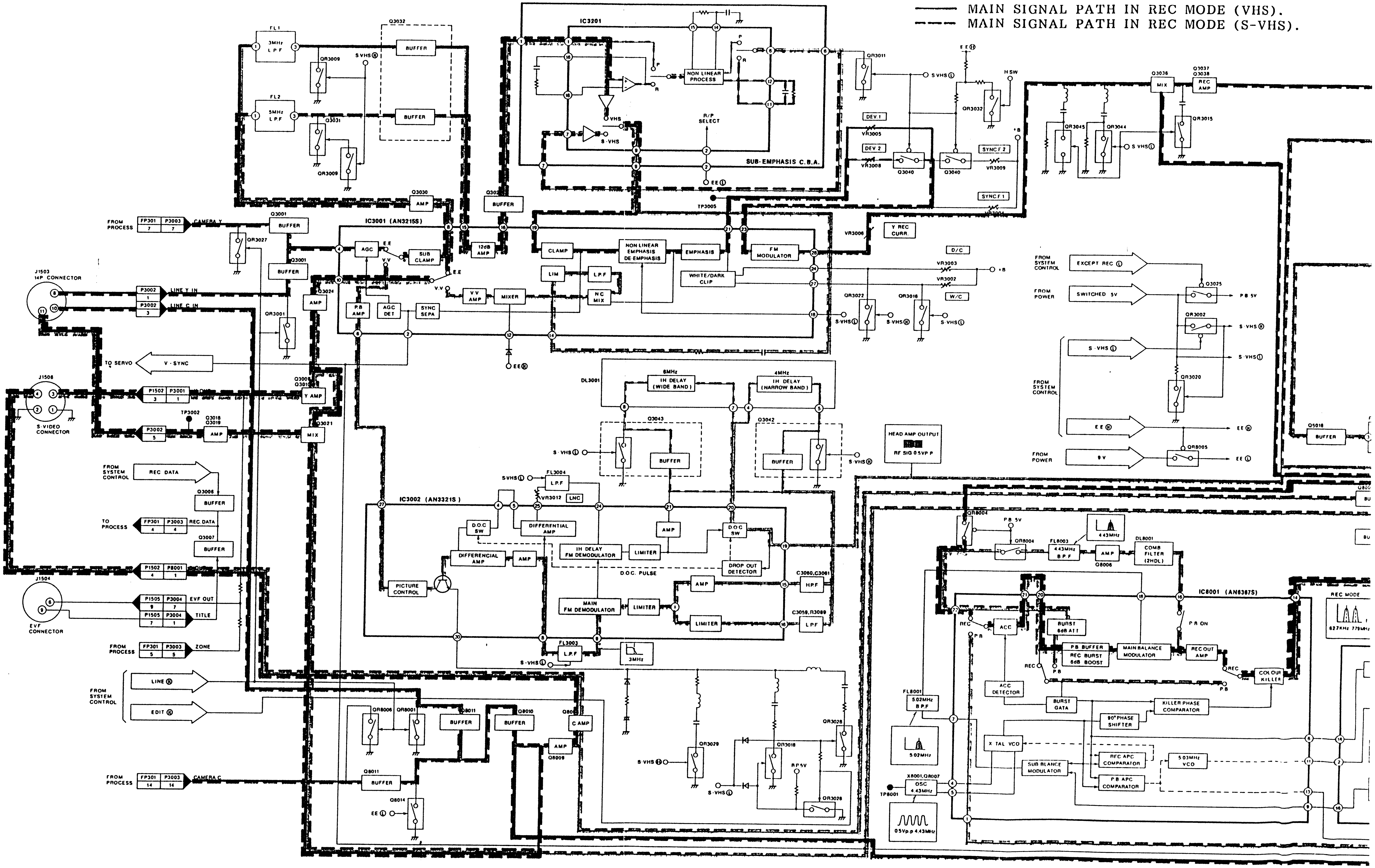
——— CYLINDER SERVO PHASE LOOP.

– – – CAPSTAN SERVO SPEED LOOP.

— — — CAPSTAN SERVO PHASE LOOP.

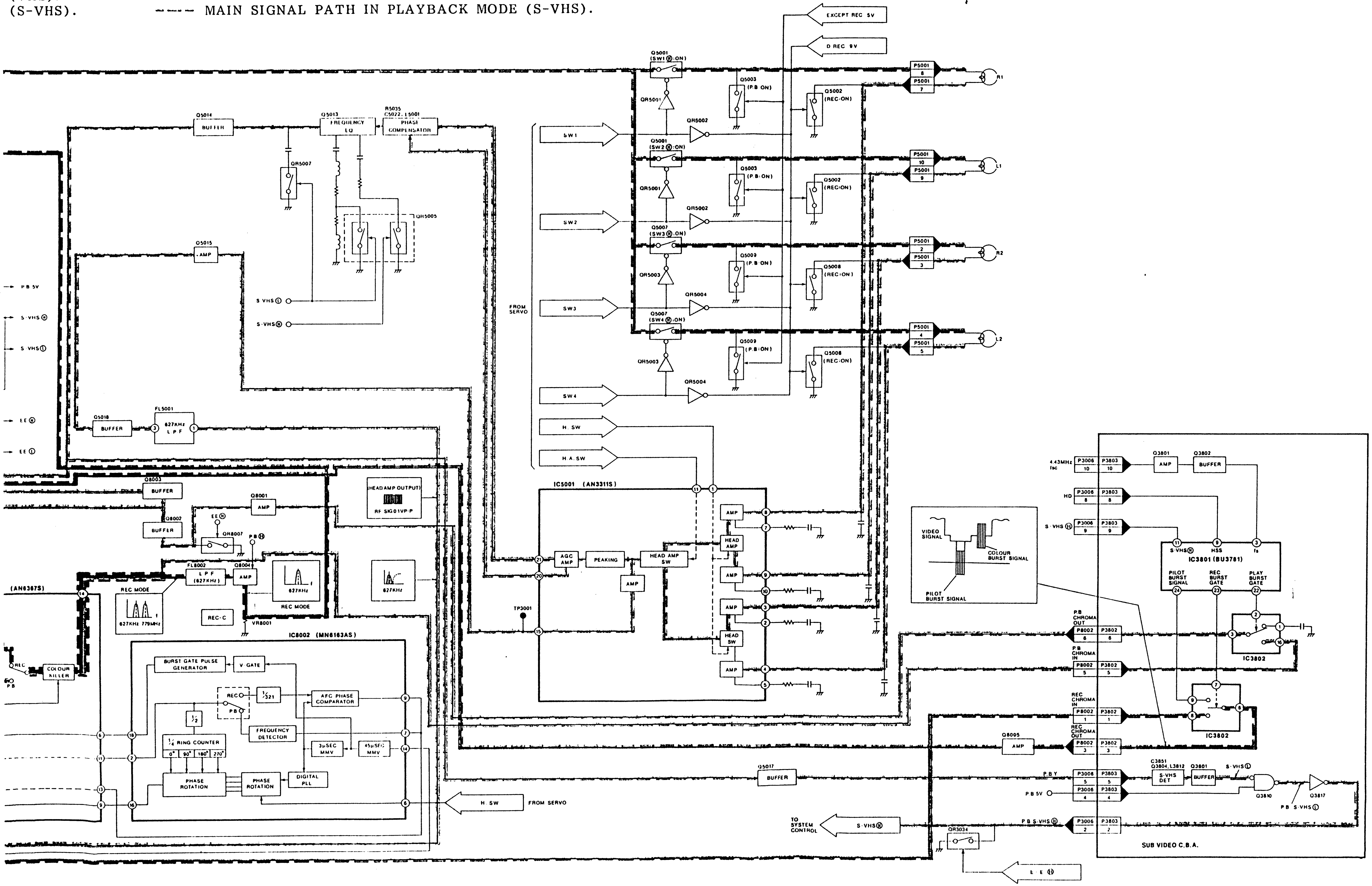

TP2003
Q2001
Q2002
Q2003
CYLINDER DRIVE +5V
FROM POWER
P2001 1
P2001 13
P2001 2
P2001 10
P2001 12
P2001 5
P2001 6
P2001 3
P2001 4
P2001 14
P2001 8
N
S
M1
M2
M3
HALL ICA
HALL ICB
HALL ICC
PG HEAD
FG HEAD
DD CYLINDER MOTOR
IC2007
CTL DUTY
SHIFT(L)2
SHIFT(L)1
PB CTL
H SW
H AMP SW
TR UP Ⓗ
TR DOWN Ⓗ
RESET
+5V
HEAD TR RECOGNITION
OSC
X2001
QR2004
(a)
(b)
FROM IC6007-13
HEAD TR RECOGNITION
NORMAL 2.5V
SPEED UP → VOLTAGE UP
SPEED DOWN → VOLTAGE DOWN
CYL ON/OFF
POSITION SIGNAL PROCESS
DIFFERENTIAL AMPLIFIER
MOTOR DRIVE
TORQUE CONTROL
VCC
+5V
IC 2006 (TA8402F)
(CYLINDER MOTOR DRIVE)
CYLINDER PG
CYLINDER FG
CAP POWER
FROM POWER
ETR
RIPPLE CANCELLER
TORQUE CONTROL
MOTOR DRIVE
DIFFERENTIAL AMPLIFIER
POSITION SIGNAL PROCESS
TORQUE DIRECTION
IC 2005 (BA6130S)
(CAPSTAN MOTOR DRIVE)
P2002 4
P2002 8
P2002 13
P2002 5
P2002 7
P2002 9
P2002 11
P2002 12
P2002 14
P2002 1
HALL IC1
HALL IC2
HALL IC3
DD CAPSTAN MOTOR
CAP REV Ⓗ/STOP Ⓜ/FWD Ⓛ
AGE UP
AGE DOWN
MINANCE
3798S)
ING PULSE GENERATOR)
EE Ⓗ
VCC
VREF IN
VREF OUT
+5V

3-5. LUMINANCE & CHROMINANCE BLOCK DIAGRAM


MAIN SIGNAL PATH IN REC MODE (VHS).
MAIN SIGNAL PATH IN REC MODE (S-VHS).
FL1
3MHz L.P.F
FL2
5MHz L.P.F
Q3032
BUFFER
BUFFER
S-VHS Ⓗ
QR3009
Q3031
QR3009
Q3030
AMP
Q3028
BUFFER
IC3201
NON LINEAR PROCESS
R/P SELECT
VHS
S-VHS
SUB-EMPHASIS C.B.A.
EE Ⓛ
TP3005
FROM PROCESS
FP301
P3003
CAMERA Y
Q3001
BUFFER
QR3027
IC3001 (AN3215S)
AGC
EE
V.V
SUB CLAMP
12dB AMP
CLAMP
NON LINEAR EMPHASIS DE-EMPHASIS
EMPHASIS
FM MODULATOR
LIM
L.P.F
WHITE/DARK CLIP
N.C MIX
Q3024
AMP
P.B AMP
AGC DET
SYNC SEPA
V.V AMP
MIXER
EE Ⓗ
J1503 14P CONNECTOR
P3002
LINE Y IN
LINE C IN
QR3001
TO SERVO
V-SYNC
J1506
S-VIDEO CONNECTOR
P1502
P3001
TP3002
Q3018 Q3019
AMP
Q3009 Q3010
Y AMP
Q3021
MIX
FROM SYSTEM CONTROL
REC DATA
Q3006
BUFFER
TO PROCESS
REC DATA
Q3007
BUFFER
P8001
J1504
EVF CONNECTOR
P1505
P3004
EVF OUT
TITLE
FROM PROCESS
ZONE
FROM SYSTEM CONTROL
LINE Ⓗ
EDIT Ⓗ
FROM PROCESS
CAMERA C
QR3011
S-VHS Ⓛ
EE Ⓗ
HSW
DEV.1
VR3005
DEV.2
VR3008
Q3040
QR3032
Q3040
SYNC F 2
VR3009
SYNC F 1
VR3004
+B
VR3006
Y REC CURR.
D/C
VR3003
VR3002
W/C
QR3022
QR3016
S-VHS Ⓛ
S-VHS Ⓗ
S-VHS Ⓛ
QR3045
QR3044
S VHS Ⓛ
Q3036
MIX
Q3037 Q3038
REC AMP
QR3015
FROM SYSTEM CONTROL
EXCEPT REC Ⓛ
Q3025
PB 5V
FROM POWER
SWITCHED 5V
QR3002
S-VHS Ⓗ
S-VHS Ⓛ
S-VHS Ⓛ
QR3020
FROM SYSTEM CONTROL
EE Ⓗ
EE Ⓗ
FROM POWER
9V
QR8005
EE Ⓛ
Q5018
BUFFER
DL3001
6MHz 1H DELAY (WIDE BAND)
4MHz 1H DELAY (NARROW BAND)
Q3043
BUFFER
Q3042
BUFFER
S-VHS Ⓗ
HEAD AMP OUTPUT
RF SIG 0.5Vp-p
FL3004
L.P.F
VR3012
LNC
IC3002 (AN3321S)
D.O.C SW
DIFFERENTIAL AMP
AMP
D.O.C SW
DIFFERENCIAL AMP
AMP
1H DELAY FM DEMODULATOR
LIMITER
DROP OUT DETECTOR
D.O.C. PULSE
C3080,C3081
HPF
AMP
PICTURE CONTROL
MAIN FM DEMODULATOR
LIMITER
LIMITER
C3059,R3089
LPF
FL3003
L.P.F
3MHz
S-VHS Ⓛ
QR8006
QR8001
Q8011
BUFFER
Q8010
BUFFER
Q8008
C AMP
AMP
Q8009
Q8011
BUFFER
Q8014
EE Ⓛ
QR3029
S-VHS Ⓗ
QR3018
S-VHS Ⓛ
RP5V
QR3028
QR3028
QR8004
PB 5V
QR8004
FL8003 4.43MHz B.P.F
AMP
Q8006
4.43MHz
DL8001 COMB FILTER (2HDL)
IC8001 (AN6387S)
REC
P.B
ACC
BURST 6dB ATT
P.B BUFFER REC BURST 6dB BOOST
MAIN BALANCE MODULATOR
P.B ON
REC OUT AMP
REC
COLOUR KILLER
P.B
REC MODE
627KHz
ACC DETECTOR
BURST GATA
KILLER PHASE COMPARATOR
90° PHASE SHIFTER
FL8001 5.02MHz B.P.F
5.02MHz
X TAL VCO
SUB BLANCE MODULATOR
REC APC COMPARATOR
5.03MHz VCO
P.B APC COMPARATOR
X8001,Q8007 OSC 4.43MHz
TP8001
0.5Vp-p 4.43MHz

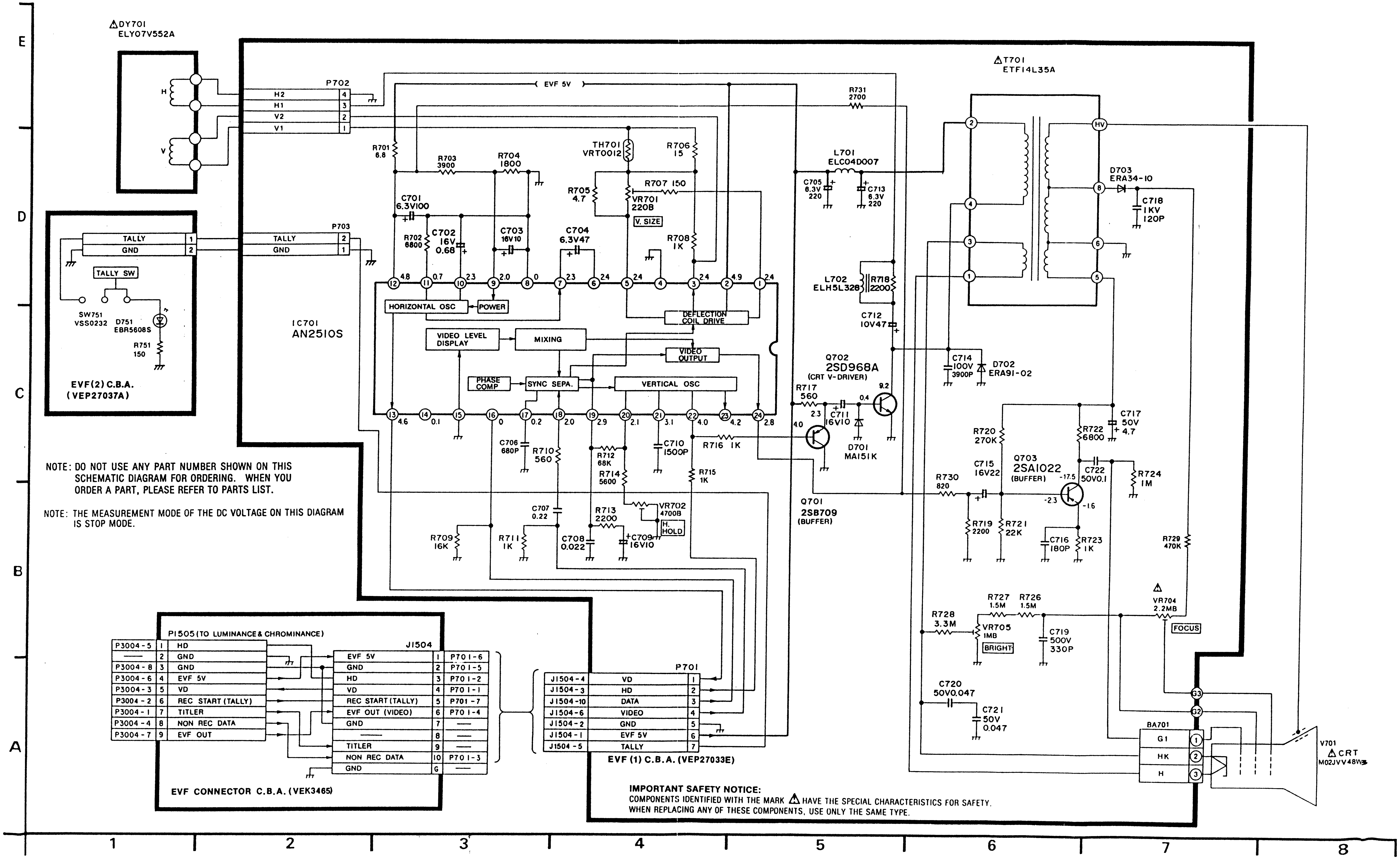
Back Page:
SERVO Section

(VHS).　　—— MAIN SIGNAL PATH IN PLAYBACK MODE (VHS).
(S-VHS).　　---- MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS).



EXCEPT REC 5V
D REC 9V
Q5001 (SW1 Ⓗ:ON)
QR5001
Q5003 (P.B ON)
Q5002 (REC:ON)
QR5002
Q5001 (SW2 Ⓗ:ON)
Q5007 (SW3 Ⓗ:ON)
QR5003
Q5009 (P.B ON)
Q5008 (REC:ON)
QR5004
Q5007 (SW4 Ⓗ:ON)
P5001
R1
L1
R2
L2
SW1
SW2
SW3
SW4
H. SW
H.A. SW
FROM SERVO
Q5014
BUFFER
Q5013
FREQUENCY EQ
R5035 C5022, L5001
PHASE COMPENSATOR
QR5007
QR5005
Q5015
AMP
S-VHS Ⓛ
S-VHS Ⓗ
P.B 5V
EE Ⓗ
EE Ⓛ
Q5018
BUFFER
FL5001
627KHz L.P.F
IC5001 (AN3311S)
AGC AMP
PEAKING
HEAD AMP SW
HEAD AMP
HEAD SW
AMP
TP3001
Q8003
BUFFER
Q8001
AMP
Q8002
BUFFER
EE Ⓗ
QR8007
P.B Ⓗ
(HEAD AMP OUTPUT)
RF SIG 0.1VP-P
FL8002
L.P.F (627KHz)
Q8004
AMP
627KHz
REC MODE
627KHz
REC MODE
627KHz 779MHz
REC-C
VR8001
(AN6367S)
COLOUR KILLER
REC
P.B
IC8002 (MN6163AS)
BURST GATE PULSE GENERATOR
V GATE
REC
P.B
1/321
AFC PHASE COMPARATOR
1/2
FREQUENCY DETECTOR
1/4 RING COUNTER
0° 90° 180° 270°
3μSEC MMV
45μSEC MMV
PHASE ROTATION
PHASE ROTATION
DIGITAL PLL
H. SW
FROM SERVO
VIDEO SIGNAL
COLOUR BURST SIGNAL
PILOT BURST SIGNAL
4.43MHz fsc
HD
S-VHS Ⓗ
P3006
P3803
Q3801
AMP
Q3802
BUFFER
IC3801 (BU3781)
S-VHS Ⓗ
HSS
fs
PILOT BURST SIGNAL
REC BURST GATE
PLAY BURST GATE
PB CHROMA OUT
PB CHROMA IN
REC CHROMA IN
REC CHROMA OUT
P8002
P3802
IC3802
Q8005
AMP
Q5017
BUFFER
P.B Y
P.B 5V
C3851 Q3804, L3812
S-VHS DET
Q3801
BUFFER
S-VHS Ⓛ
Q3810
Q3817
P.B S-VHS Ⓛ
TO SYSTEM CONTROL
S-VHS Ⓗ
QR3034
P.B S-VHS Ⓗ
E-E Ⓗ
SUB VIDEO C.B.A.

3-6. E.V.F. SCHEMATIC DIAGRAM



DY701
ELY07V552A
P702
H2
H1
V2
V1
P703
TALLY
GND
TALLY SW
SW751
VSS0232
D751
EBR5608S
R751
150
EVF(2) C.B.A.
(VEP27037A)
IC701
AN2510S
HORIZONTAL OSC
POWER
DEFLECTION COIL DRIVE
VIDEO LEVEL DISPLAY
MIXING
VIDEO OUTPUT
PHASE COMP
SYNC SEPA.
VERTICAL OSC
EVF 5V
R701
6.8
R703
3900
R704
1800
C701
6.3V100
R702
6800
C702
16V
0.68
C703
16V10
C704
6.3V47
TH701
VRT0012
R705
4.7
R706
15
R707 150
VR701
220B
V. SIZE
R708
1K
C706
680P
R710
560
R712
68K
R714
5600
C710
1500P
R716 1K
R715
1K
C707
0.22
VR702
4700B
H. HOLD
R713
2200
C708
0.022
C709
16V10
R709
16K
R711
1K
R731
2700
L701
ELC04D007
C705
6.3V
220
C713
6.3V
220
L702
ELH5L328
R718
2200
C712
10V47
Q702
2SD968A
(CRT V-DRIVER)
R717
560
C711
16V10
D701
MA151K
Q701
2SB709
(BUFFER)
T701
ETF14L35A
D703
ERA34-10
C718
1KV
120P
C714
100V
3900P
D702
ERA91-02
C717
50V
4.7
R720
270K
R722
6800
Q703
2SA1022
(BUFFER)
C715
16V22
C722
50V0.1
R724
1M
R730
820
R719
2200
R721
22K
C716
180P
R723
1K
R729
470K
R727
1.5M
R726
1.5M
R728
3.3M
VR705
1MB
BRIGHT
C719
500V
330P
VR704
2.2MB
FOCUS
C720
50V0.047
C721
50V
0.047
BA701
G1
HK
H
V701
CRT
M02JVV48W
P1505 (TO LUMINANCE & CHROMINANCE)
J1504
EVF CONNECTOR C.B.A. (VEK3465)
P701
EVF (1) C.B.A. (VEP27033E)
E
D
C
B
A
1
2
3
4
5
6
7
8

P3004 - 5	1	HD
——	2	GND
P3004 - 8	3	GND
P3004 - 6	4	EVF 5V
P3004 - 3	5	VD
P3004 - 2	6	REC START (TALLY)
P3004 - 1	7	TITLER
P3004 - 4	8	NON REC DATA
P3004 - 7	9	EVF OUT

EVF 5V	1	P70 1 - 6
GND	2	P70 1 - 5
HD	3	P70 1 - 2
VD	4	P70 1 - 1
REC START (TALLY)	5	P701 - 7
EVF OUT (VIDEO)	6	P70 1 - 4
GND	7	——
——	8	——
TITLER	9	——
NON REC DATA	10	P70 1 - 3
GND	G	——

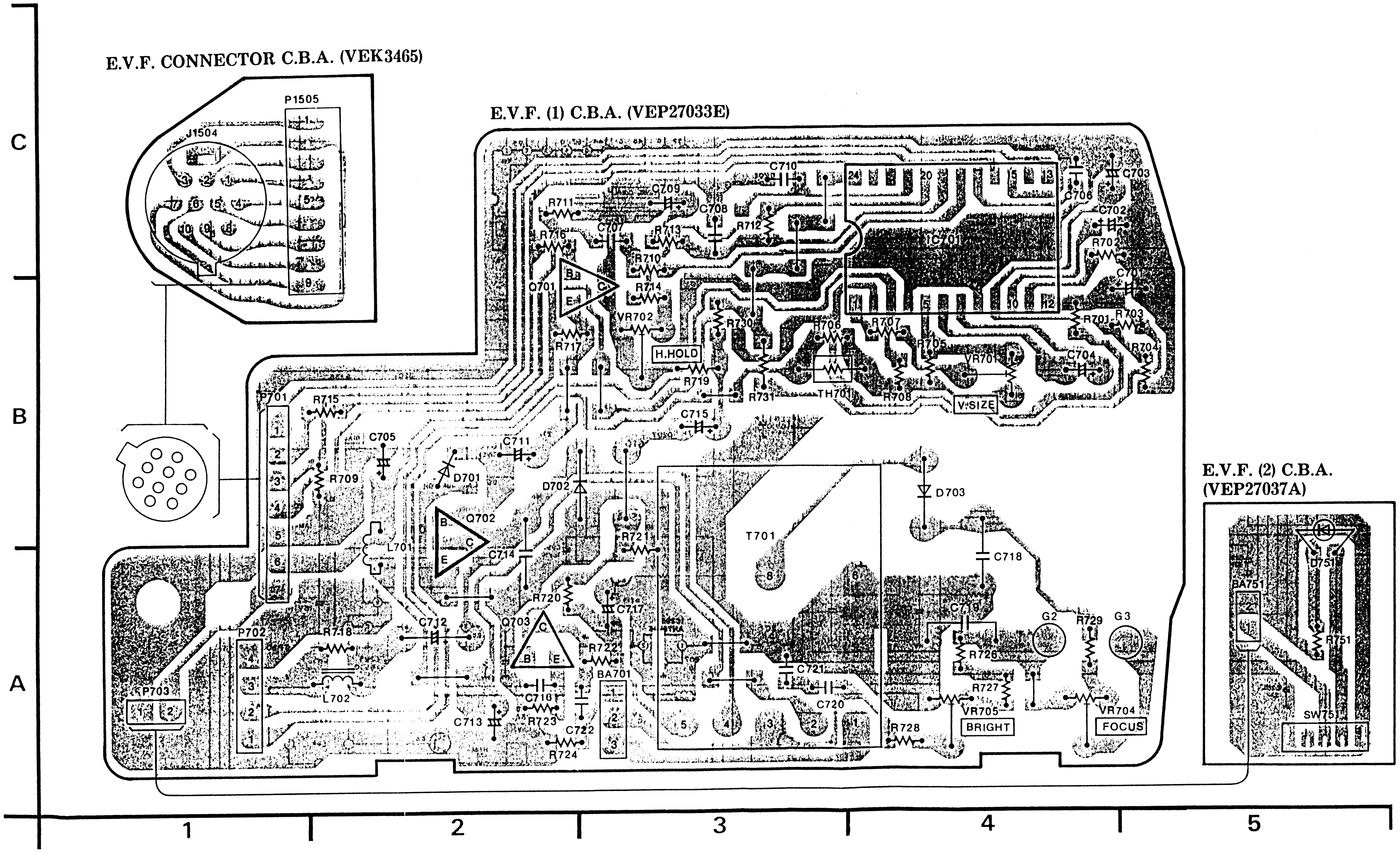
J1504 - 4	VD	1
J1504 - 3	HD	2
J1504 - 10	DATA	3
J1504 - 6	VIDEO	4
J1504 - 2	GND	5
J1504 - 1	EVF 5V	6
J1504 - 5	TALLY	7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

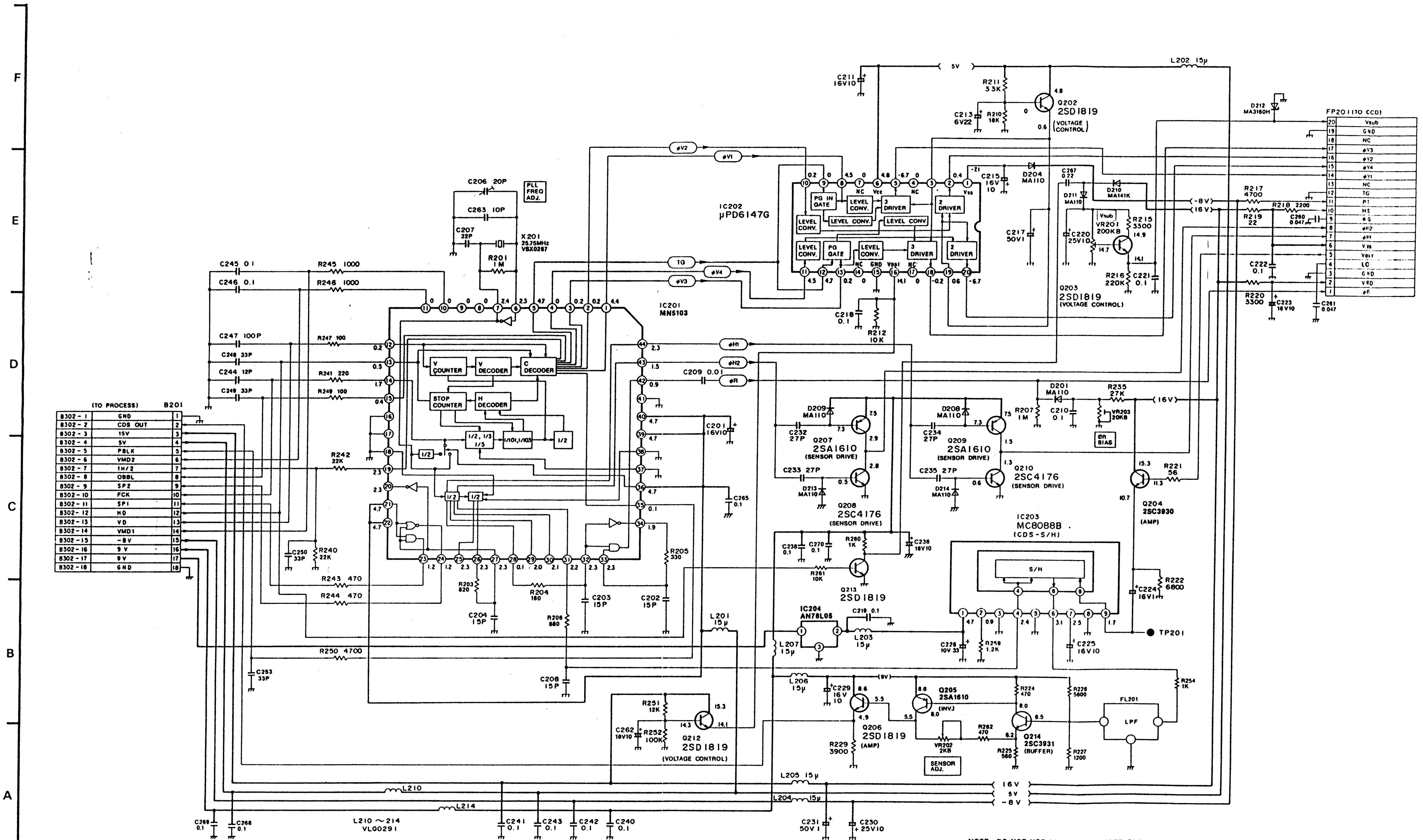
3-7. E.V.F. (1) C.B.A. (VEP27033E) & E.V.F. (2) C.B.A. (VEP27037A)


E.V.F. CONNECTOR C.B.A. (VEK3465)
E.V.F. (1) C.B.A. (VEP27033E)
E.V.F. (2) C.B.A. (VEP27037A)
C
B
A
1
2
3
4
5
P1505
J1504
P701
P702
P703
R715
C705
R709
L701
D701
D702
C711
Q702
C714
R720
C712
Q703
L702
R718
C713
C716
R723
C722
R724
R722
BA701
C717
R721
C715
R719
R731
H.HOLD
VR702
R717
Q701
R714
R710
R716
R711
C707
R713
C709
C708
R712
C710
IC701
R730
R706
TH701
R707
R708
R705
VR701
V.SIZE
C704
R704
R703
R701
C701
R702
C702
C706
C703
T701
D703
C718
C719
R726
R727
C721
C720
G2
G3
R729
R728
VR705
BRIGHT
VR704
FOCUS
D751
BA751
R751
SW751
H.HOLD

E.V.F. (1) C.B.A.	
Transistor	
Q701	B-2
Q702	B-2
Q703	A-2
Integrated Circuit	
IC701	C-4
Adjustment	
VR701	B-4
VR702	B-3
VR704	A-4
VR705	A-4
Connector	
BA701	A-3
BA751	A-5
J1504	C-1
P1505	C-1
P701	B-1
P702	A-1
P703	A-1

ADDRESS INFORMATION

3-8. SENSOR SCHEMATIC DIAGRAM



(TO PROCESS) B201
B302-1 GND 1
B302-2 CDS OUT 2
B302-3 15V 3
B302-4 5V 4
B302-5 FBLK 5
B302-6 VMD2 6
B302-7 1H/2 7
B302-8 OBBL 8
B302-9 SP2 9
B302-10 FCK 10
B302-11 SP1 11
B302-12 HD 12
B302-13 VD 13
B302-14 VMD1 14
B302-15 -8V 15
B302-16 9V 16
B302-17 9V 17
B302-18 GND 18
FP201 (TO CCD)
20 Vsub
19 GND
18 NC
17 φV3
16 φV2
15 φV4
14 φV1
13 NC
12 TG
11 P1
10 HS
9 φQ
8 φH2
7 φH1
6 VFB
5 Vout
4 LO
3 GND
2 VRD
1 φR
IC201 MN5103
V COUNTER
V DECODER
C DECODER
STOP COUNTER
H DECODER
1/2, 1/3 1/5
1/101, 1/103
1/2
IC202 μPD6147G
PG IN GATE
LEVEL CONV.
3 DRIVER
2 DRIVER
PG GATE
IC203 MC8088B (CDS-S/H)
S/H
IC204 AN78L05
Q202 2SD1819 (VOLTAGE CONTROL)
Q203 2SD1819 (VOLTAGE CONTROL)
Q204 2SC3930 (AMP)
Q205 2SA1610 (INV)
Q206 2SD1819 (AMP)
Q207 2SA1610 (SENSOR DRIVE)
Q208 2SC4176 (SENSOR DRIVE)
Q209 2SA1610 (SENSOR DRIVE)
Q210 2SC4176 (SENSOR DRIVE)
Q212 2SD1819 (VOLTAGE CONTROL)
Q213 2SD1819
Q214 2SC3931 (BUFFER)
X201 25.75MHz VBX0287
PLL FREQ ADJ.
SENSOR ADJ.
ØR BIAS
FL201 LPF
TP201
L202 15μ
L210 ~ 214 VL00291
5V
16V
-8V
9V
φV1
φV2
φV3
φV4
TG
φH1
φH2
φR

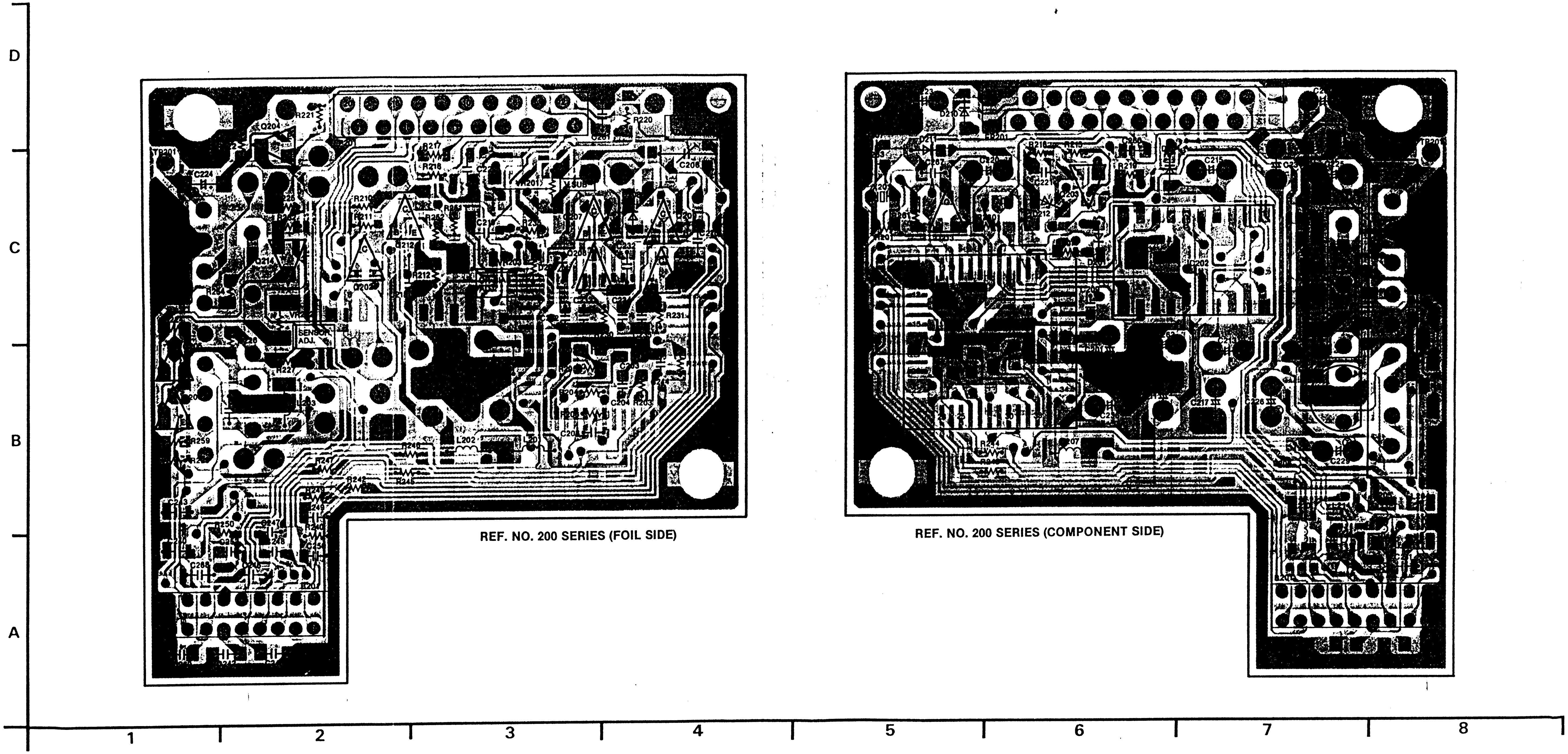
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Back Page:
E.V.F. Section

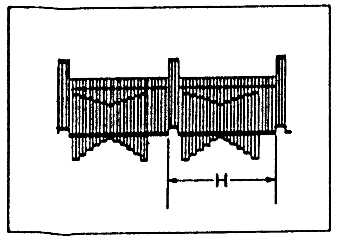
3-9. SENSOR C.B.A. (VEP22076A)


D
C
B
A
1
2
3
4
5
6
7
8
SENSOR ADJ.
R221
Q204
TP201
C224
Q214
R217
R218
R210
R211
R212
Q202
R220
C208
VR201
Q207
Q208
R231
R227
R259
L202
L201
R246
R245
R242
R250
C265
C204
R203
D210
R201
R219
C215
C202
C217
C226
C223
R244

REF. NO. 200 SERIES (FOIL SIDE)

REF. NO. 200 SERIES (COMPONENT SIDE)

SENSOR CIRCUIT TP (Test Point)
WAVE FORM (REF. NO. 200 Series)

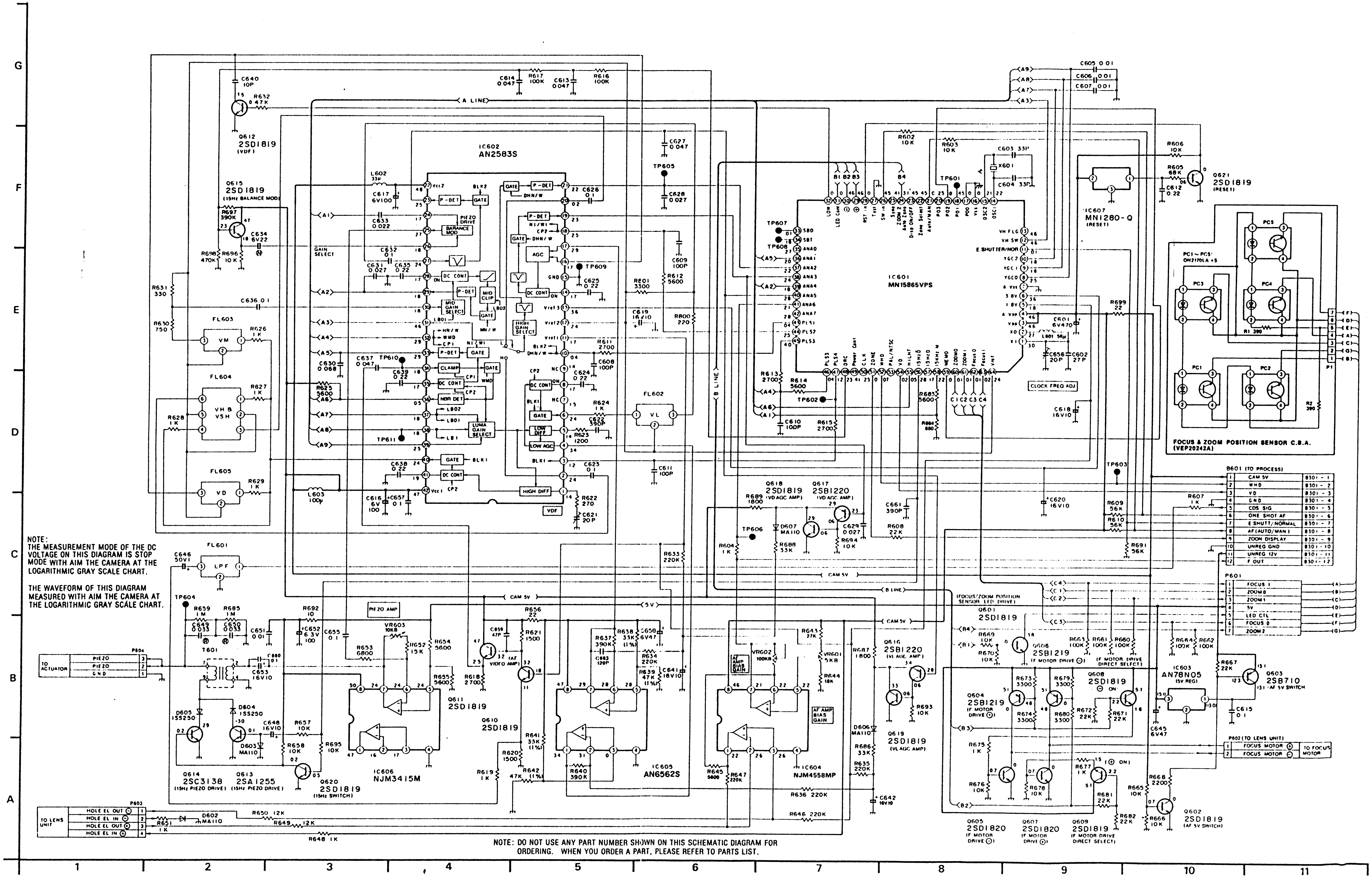


TP201 STOP
0.2V/20µsec. div. 0.6Vp-p

SENSOR C.B.A.					
Translator		**Integrated Circuit**		**Adjustment**	
Q202	C-2 Ⓕ	IC201	B-6 Ⓒ	C206	C-4 Ⓕ
Q203	C-6 Ⓒ	IC202	C-7 Ⓒ	VR201	C-3 Ⓕ
Q204	B-1 Ⓕ	IC203	C-8 Ⓒ	VR202	C-1 Ⓕ
Q205	B-1 Ⓕ	IC204	B-7 Ⓒ	VR203	C-3 Ⓕ
Q206	B-1 Ⓕ	**Test Point**		**Connector**	
Q207	C-3 Ⓕ	TP201	C-1 Ⓕ	B201	A-2 Ⓕ
Q208	C-3 Ⓕ	TP201	C-8 Ⓒ	B201	A-7 Ⓒ
Q209	C-4 Ⓕ			FP201	D-3 Ⓕ
Q210	C-4 Ⓕ			FP201	D-6 Ⓒ
Q212	C-2 Ⓕ				
Q213	C-5 Ⓒ				
Q214	C-2 Ⓕ				

ADDRESS INFORMATICN
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-10. AUTO FOCUS SCHEMATIC DIAGRAM

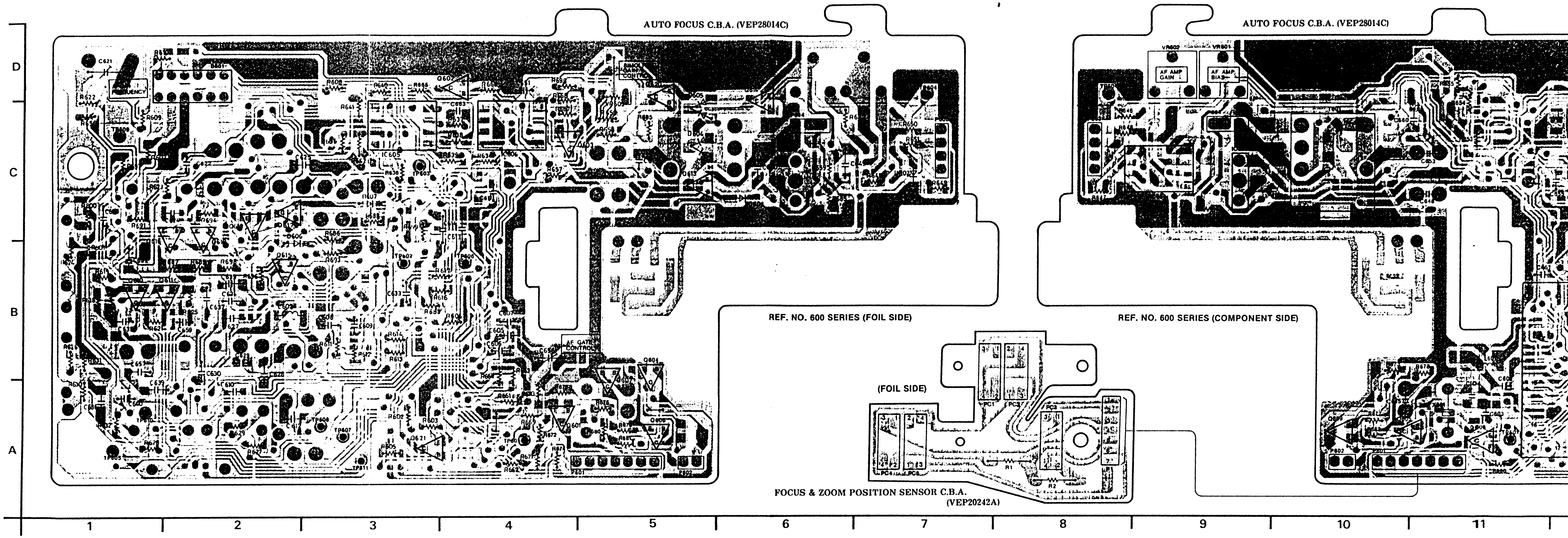

G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
IC602
AN2583S
IC601
MN15865VPS
IC607
MN1280-Q
(RESET)
IC605
AN6562S
IC604
NJM4558MP
IC606
NJM3415M
IC603
AN78N05
(5V REG)
Q612
2SD1819
(VDF)
Q615
2SD1819
(15Hz BALANCE MOD)
Q618
2SD1819
(VD AGC AMP)
Q617
2SB1220
(VD AGC AMP)
Q616
2SB1220
(VL AGC AMP)
Q619
2SD1819
(VL AGC AMP)
Q611
2SD1819
Q610
2SD1819
Q614
2SC3138
(15Hz PIEZO DRIVE)
Q613
2SA1255
(15Hz PIEZO DRIVE)
Q620
2SD1819
(15Hz SWITCH)
Q601
2SD1819
Q606
2SB1219
(F MOTOR DRIVE ⊖)
Q604
2SB1219
(F MOTOR DRIVE ⊕)
Q608
2SD1819
Q605
2SD1820
(F MOTOR DRIVE ⊖)
Q607
2SD1820
(F MOTOR DRIVE ⊕)
Q609
2SD1819
(F MOTOR DRIVE DIRECT SELECT)
Q602
2SD1819
(AF 5V SWITCH)
Q603
2SB710
(AF 5V SWITCH)
Q621
2SD1819
(RESET)
FL601
LPF
FL602
VL
FL603
VM
FL604
VH & VSH
FL605
VD
T601
PIEZO AMP
AF AMP BIAS GAIN
(FOCUS/ZOOM POSITION SENSOR LED DRIVE)
A LINE
B LINE
CAM 5V
5V
CLOCK FREQ ADJ
X601
TP601
TP602
TP603
TP604
TP605
TP606
TP607
TP608
TP609
TP610
TP611
PC1~PC5:
ON2170LA ×5
PC1
PC2
PC3
PC4
PC5
P1
FOCUS & ZOOM POSITION SENSOR C.B.A.
(VEP20242A)
B601 (TO PROCESS)
1 CAM 5V B301-1
2 WHD B301-2
3 VD B301-3
4 GND B301-4
5 CDS SIG B301-5
6 ONE SHOT AF B301-6
7 E SHUTT/NORMAL B301-7
8 AF(AUTO/MAN) B301-8
9 ZOON DISPLAY B301-9
10 UNREG GND B301-10
11 UNREG 12V B301-11
12 F OUT B301-12
P601
1 FOCUS 1
2 ZOOM 0
3 ZOOM 1
4 5V
5 LED CTL
6 FOCUS 0
7 ZOOM 2
P802 (TO LENS UNIT)
1 FOCUS MOTOR ⊕
2 FOCUS MOTOR ⊖
TO FOCUS MOTOR
P804
TO ACTUATOR
PIEZO
PIEZO
GND
P803
TO LENS UNIT
HOLE EL OUT ⊖
HOLE EL IN ⊖
HOLE EL OUT ⊕
HOLE EL IN ⊕

NOTE:
THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

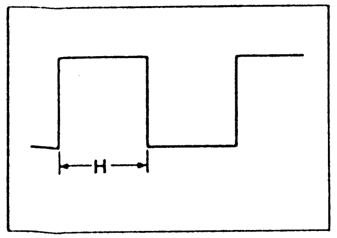
THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

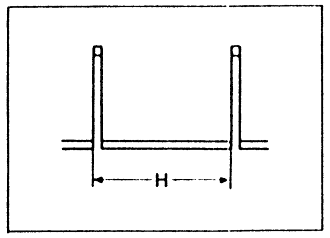
3-11. AUTO FOCUS C.B.A. (VEP28014C)


AUTO FOCUS C.B.A. (VEP28014C)
AUTO FOCUS C.B.A. (VEP28014C)
REF. NO. 600 SERIES (FOIL SIDE)
REF. NO. 600 SERIES (COMPONENT SIDE)
(FOIL SIDE)
FOCUS & ZOOM POSITION SENSOR C.B.A.
(VEP20242A)
AF AMP GAIN
AF AMP BIAS
AF GATE CONTROL
VR602
VR601
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

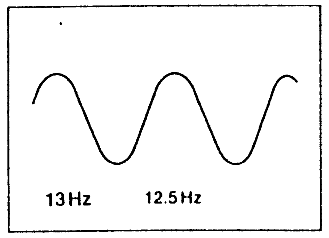
AUTO FOCUS CIRCUIT TP (Test Point)
WAVE FORM (REF. NO. 600 Series)



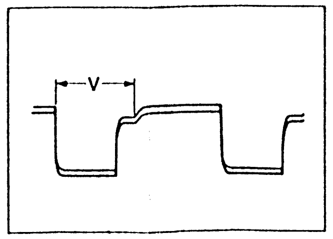
TP602 STOP
2.0 V/20µsec. div. 4.8Vp-p



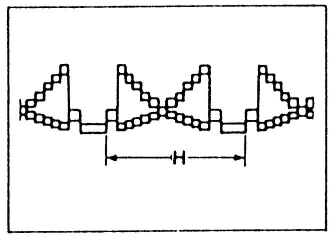
TP603 STOP
2.0V/20µsec. div. 5.0Vp-p



TP604 STOP
5.0V/20msec. div. 78Vp-p



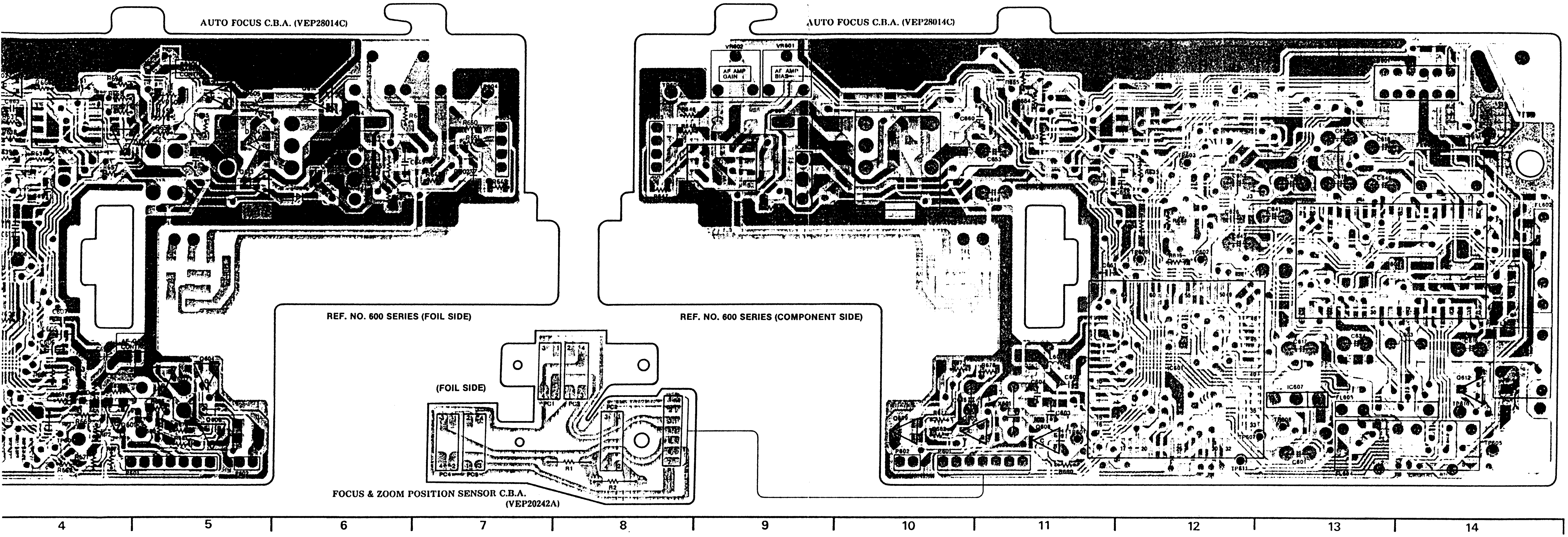
TP605 STOP
0.5V/5msec. div. 1.2Vp-p

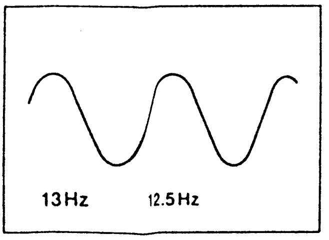


TP610 STOP
0.1V/20µsec. div. 0.25Vp-p

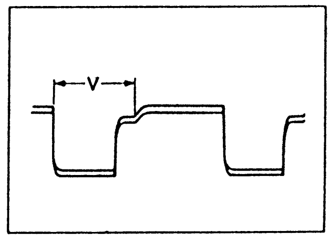
Translator	
Q601	A-4
Q602	D-4
Q603	C-4
Q604	B-5
Q605	A-11
Q606	A-5
Q607	B-5
Q608	A-11
Q609	A-10
Q610	B-1
Q611	B-2
Q612	B-14
Q613	C-5
Q614	D-6
Q615	B-2
Q616	C-2
Q617	C-2
Q618	C-2
Q619	C-2
Q620	D-5
Q621	A-3

ADDRESS INFORMATION
Ⓒ … COMPONENT SID
Ⓕ … FOIL SIDE

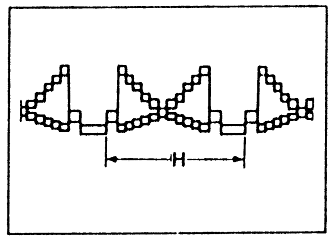

AUTO FOCUS C.B.A. (VEP28014C)
AUTO FOCUS C.B.A. (VEP28014C)
REF. NO. 600 SERIES (FOIL SIDE)
REF. NO. 600 SERIES (COMPONENT SIDE)
(FOIL SIDE)
FOCUS & ZOOM POSITION SENSOR C.B.A.
(VEP20242A)
AF AMP GAIN
AF AMP BIAS
VR602
VR601
IC607
FL605
FL602
4
5
6
7
8
9
10
11
12
13
14



TP604 STOP
5.0V/20msec. div. 78Vp-p



TP605 STOP
0.5V/5msec. div. 1.2Vp-p



TP610 STOP
0.1V/20μsec. div. 0.25Vp-p

AUTO FOCUS C.B.A.

Translstor	
Q601	A-4 Ⓕ
Q602	D-4 Ⓕ
Q603	C-4 Ⓕ
Q604	B-5 Ⓕ
Q605	A-11 Ⓒ
Q606	A-5 Ⓕ
Q607	B-5 Ⓕ
Q608	A-11 Ⓒ
Q609	A-10 Ⓒ
Q610	B-1 Ⓕ
Q611	B-2 Ⓕ
Q612	B-14 Ⓒ
Q613	C-5 Ⓕ
Q614	D-6 Ⓕ
Q615	B-2 Ⓕ
Q616	C-2 Ⓕ
Q617	C-2 Ⓕ
Q618	C-2 Ⓕ
Q619	C-2 Ⓕ
Q620	D-5 Ⓕ
Q621	A-3 Ⓕ

Integrated Circuit	
IC601	B-12 Ⓒ
IC602	B-13 Ⓒ
IC603	C-9 Ⓒ
IC604	C-9 Ⓒ
IC605	C-3 Ⓕ
IC606	C-4 Ⓕ
IC607	A-13 Ⓒ

Test Point	
TP601	A-4 Ⓕ
TP601	A-11 Ⓒ
TP602	B-3 Ⓕ
TP602	B-12 Ⓒ
TP603	C-3 Ⓕ
TP603	C-12 Ⓒ
TP604	D-7 Ⓕ
TP604	D-8 Ⓒ
TP605	A-1 Ⓕ
TP605	A-14 Ⓒ
TP606	B-4 Ⓕ
TP606	B-12 Ⓒ
TP607	A-3 Ⓕ
TP607	A-13 Ⓒ
TP608	A-3 Ⓕ
TP608	A-13 Ⓒ
TP609	C-1 Ⓕ
TP609	C-14 Ⓒ
TP610	A-1 Ⓕ
TP610	A-14 Ⓒ
TP611	A-3 Ⓕ
TP611	A-12 Ⓒ

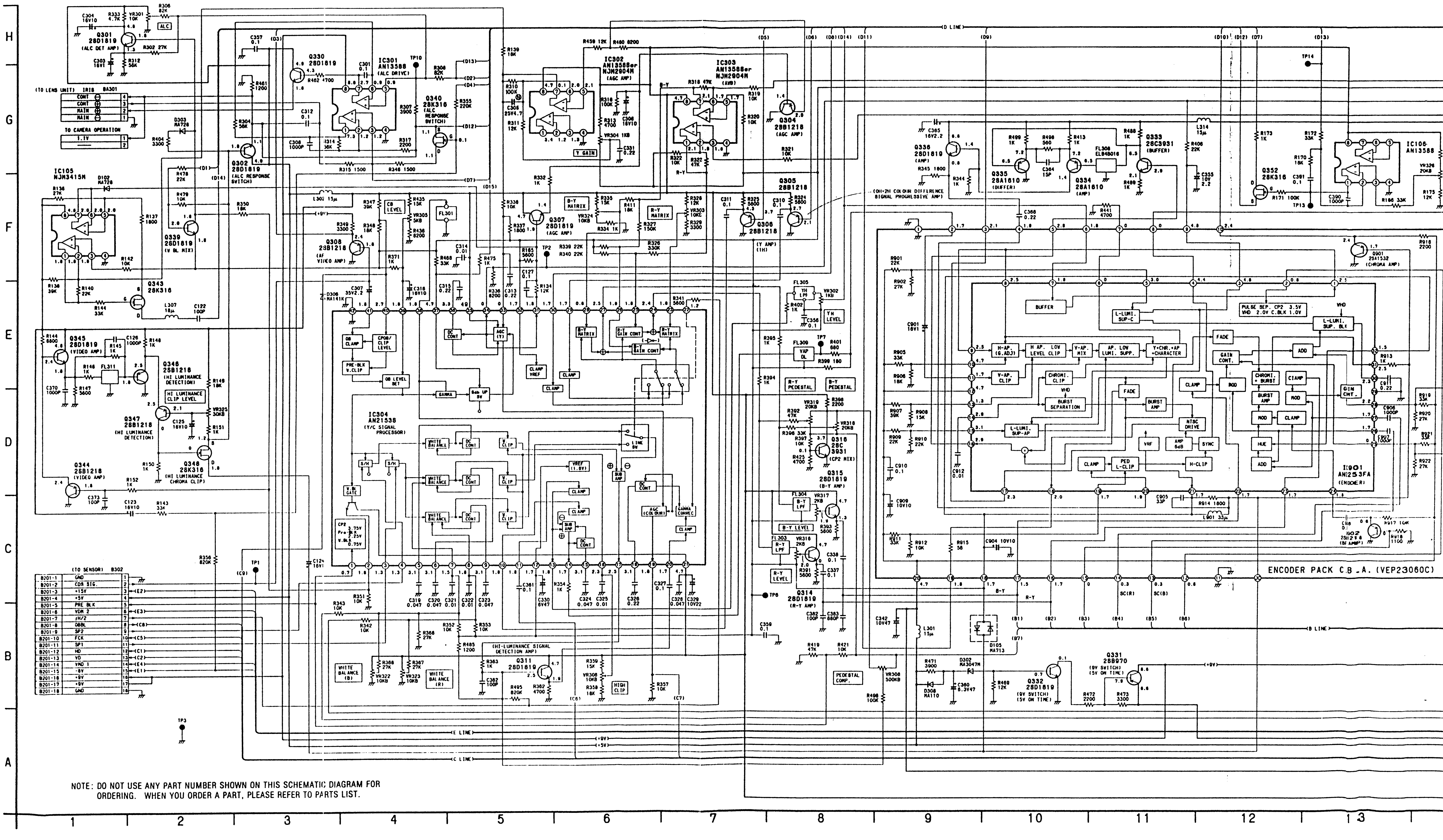
Adjustment	
C621	D-1 Ⓕ
C656	B-4 Ⓕ
VR601	D-9 Ⓒ
VR602	D-9 Ⓒ
VR603	D-5 Ⓕ

Connector	
P1	A-8
B601	D-2 Ⓕ
B601	D-14 Ⓒ
P601	A-5 Ⓕ
P601	A-11 Ⓒ
P602	A-5 Ⓕ
P602	A-10 Ⓒ
P603	C-7 Ⓕ
P603	C-8 Ⓒ
P604	C-6 Ⓕ
P604	C-9 Ⓒ

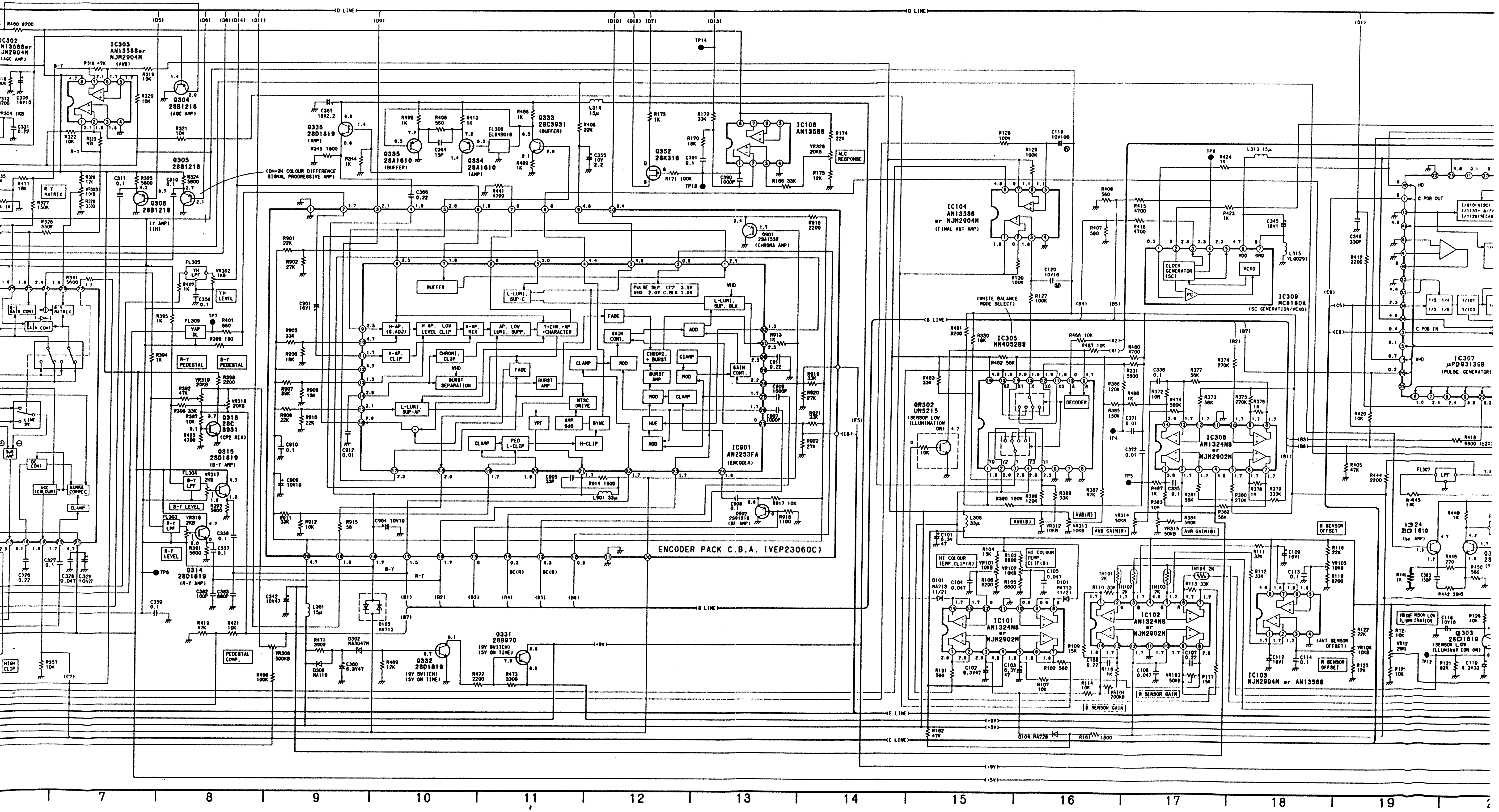
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

Next Page:
PROCESS & ENCODER PACK Section

3-12. PROCESS & ENCODER PACK SCHEMATIC DIAGRAM


H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
Q301 2SD1819 (ALC DET AMP)
ALC
(TO LENS UNIT) IR18 8A301
CONT
MAIN
TO CAMERA OPERATION
1.1V
IC105 NJM3415M
Q339 2SD1819 (V BL MIX)
Q343 2SK316
Q345 2SD1819 (VIDEO AMP)
Q346 2SB1218 (HI LUMINANCE DETECTION)
HI LUMINANCE CLIP LEVEL
Q347 2SB1218 (HI LUMINANCE DETECTION)
Q348 2SK316 (HI LUMINANCE CHROMA CLIP)
Q344 2SB1218 (VIDEO AMP)
Q302 2SD1819 (ALC RESPONSE SWITCH)
Q330 2SD1819
IC301 AN13588 (ALC DRIVE)
TP10
Q340 2SK316 (ALC RESPONSE SWITCH)
Q308 2SB1218 (AF VIDEO AMP)
CB LEVEL
FL301
IC302 AN13588or NJM2904M (AGC AMP)
Y GAIN
Q307 2SD1819 (AGC AMP)
TP2
B-Y MATRIX
R-Y MATRIX
IC303 AN13588or NJM2904M (AWB)
Q304 2SB1218 (AGC AMP)
Q305 2SB1218
Q306 2SB1218 (Y AMP) (1H)
IC304 AN21538 (Y/C SIGNAL PROCESSOR)
OB CLAMP
CPOB/CLIP LEVEL
PRE-BLK V.CLIP
OB LEVEL SET
GAMMA
6dB UP SW
DC CONT
AGC (Y)
CLAMP VREF
B-Y GAIN CONT
R-Y GAIN CONT
WHITE BALANCE
Y CLIP
LINE SW
VREF (1.8V)
SUB AMP
AGC (COLOUR)
GAMMA CORREC
S/H
V BL GATE
CP2 3.75V Pre-BLK 2.25V V.BLK 0.75V
TP1
TP3
TP6
TP7
(TO SENSOR) B302
FL305 YH LPF
YH LEVEL
FL309 YAP DL
R-Y PEDESTAL
B-Y PEDESTAL
Q316 2SC3931 (CP2 MIX)
Q315 2SD1819 (B-Y AMP)
FL304 B-Y LPF
B-Y LEVEL
FL303 R-Y LPF
R-Y LEVEL
Q314 2SD1819 (R-Y AMP)
PEDESTAL COMP.
WHITE BALANCE (B)
WHITE BALANCE (R)
Q311 2SD1819 (HI-LUMINANCE SIGNAL DETECTION AMP)
HIGH CLIP
Q336 2SD1819 (AMP)
Q335 2SA1610 (BUFFER)
Q334 2SA1610 (AMP)
Q333 2SC3931 (BUFFER)
FL306 EL848016
(0H+2H COLOUR DIFFERENCE SIGNAL PROGRESSIVE AMP)
Q352 2SK316
IC106 AN13588
TP13
TP14
Q901 2SA1532 (CHROMA AMP)
BUFFER
L-LUMI. SUP-C
PULSE SEP. CP2 3.5V VHD 2.0V C.BLK 1.0V
L-LUMI. SUP. BLK
H-AP. (G.ADJ)
H AP. LOW LEVEL CLIP
V-AP. MIX
AP. LOW LUMI. SUPP.
Y+CHR.+AP +CHARACTER
FADE
GAIN CONT.
ADD
V-AP. CLIP
CHROMI. CLIP
BURST SEPARATION
BURST AMP
NTSC DRIVE
L-LUMI. SUP-AP
CLAMP
MOD
CHROMI. + BURST
GIN CNT.
HUE
VRF
AMP 6dB
SYNC
PED L-CLIP
H-CLIP
IC901 AN1253FA (ENCODER)
Q902 2SD1818 (BI AMP)
ENCODER PACK C.B.A. (VEP23060C)
D105 MA713
Q331 2SB970 (9V SWITCH) (5V ON TIME)
Q332 2SD1819 (9V SWITCH) (5V ON TIME)
D LINE
B LINE
E LINE
C LINE
(+9V)
(+5V)

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


D LINE
IC302 AN13588 or NJM2904M (AGC AMP)
IC303 AN13588 or NJM2904M (AVB)
Q304 2SB1218 (AGC AMP)
Q305 2SB1218
Q306 2SB1218 (Y AMP) (1H)
R-Y MATRIX
(0H+2H COLOUR DIFFERENCE SIGNAL PROGRESSIVE AMP)
Q336 2SD1819 (AMP)
Q335 2SA1610 (BUFFER)
Q334 2SA1610 (AMP)
FL306 EL84B016
Q333 2SC3931 (BUFFER)
L314 15μ
Q352 2SK318
TP14
TP13
IC108 AN13588
ALC RESPONSE
FL305 YH LPF
YH LEVEL
FL309 YAP DL
TP7
R-Y PEDESTAL
B-Y PEDESTAL
Q316 2SC3931 (CP2 MIX)
Q315 2SD1819 (B-Y AMP)
FL304 B-Y LPF
B-Y LEVEL
FL303 R-Y LPF
R-Y LEVEL
Q314 2SD1819 (R-Y AMP)
TP6
GAIN CONT
R MATRIX
LINE 5V
SUB AMP
DC CONT
AGC (COLOUR)
GAMMA CORREC
CLAMP
HIGH CLIP
PEDESTAL COMP.
BUFFER
L-LUMI. SUP-C
PULSE SEP. CP2 3.5V VHD 2.0V C.BLK 1.0V
L-LUMI. SUP. BLK
Q901 2SA1532 (CHROMA AMP)
H-AP. (G.ADJ)
H AP. LOW LEVEL CLIP
V-AP. MIX
AP. LOW LUMI. SUPP.
Y+CHR.+AP +CHARACTER
FADE
GAIN CONT.
ADD
V-AP. CLIP
CHROMI. CLIP
BURST SEPARATION
BURST AMP
CLAMP
MOD
CHROMI. + BURST
BURST AMP
NTSC DRIVE
L-LUMI. SUP-AP
YRF
AMP 6dB
SYNC
H-CLIP
HUE
PED L-CLIP
IC901 AN2253FA (ENCODER)
Q902 2SD1218 (BF AMP)
ENCODER PACK C.B.A. (VEP23060C)
D105 MA713
Q332 2SD1819 (5V SWITCH) (5V ON TIME)
Q331 2SB970 (5V SWITCH) (5V ON TIME)
D302 MA3047M
D306 MA110
B LINE
IC104 AN13588 or NJM2904M (FINAL AVI AMP)
(WHITE BALANCE MODE SELECT)
IC305 MN4052BB
DECODER
QR302 UN5215 (SENSOR LOW ILLUMINATION ON)
TP4
TP5
TP8
IC309 MC8180A (SC GENERATION/VCXO)
CLOCK GENERATOR (SC)
VCXO
PC
L313 15μ
L315 YL00291
IC306 AN1324NS or NJM2902M
AVB(R)
AVB(B)
AVB GAIN(R)
AVB GAIN(B)
L306 33μ
HI COLOUR TEMP. CLIP(R)
HI COLOUR TEMP. CLIP(B)
IC101 AN1324NS or NJM2902M
IC102 AN1324NS or NJM2902M
R SENSOR GAIN
B SENSOR GAIN
B SENSOR OFFSET
(AVI SENSOR OFFSET)
R SENSOR OFFSET
IC103 NJM2904M or AN13588
D104 MA728
E LINE
C LINE
IC307 μPD9313GB (PULSE GENERATOR)
HD
C POB OUT
C POB IN
VHD
FL307 LPF
Q324 2SD1819
Q303 2SD1819 (SENSOR LOW ILLUMINATION ON)
SENSOR LOW ILLUMINATION
TP12
7
8
9
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11
12
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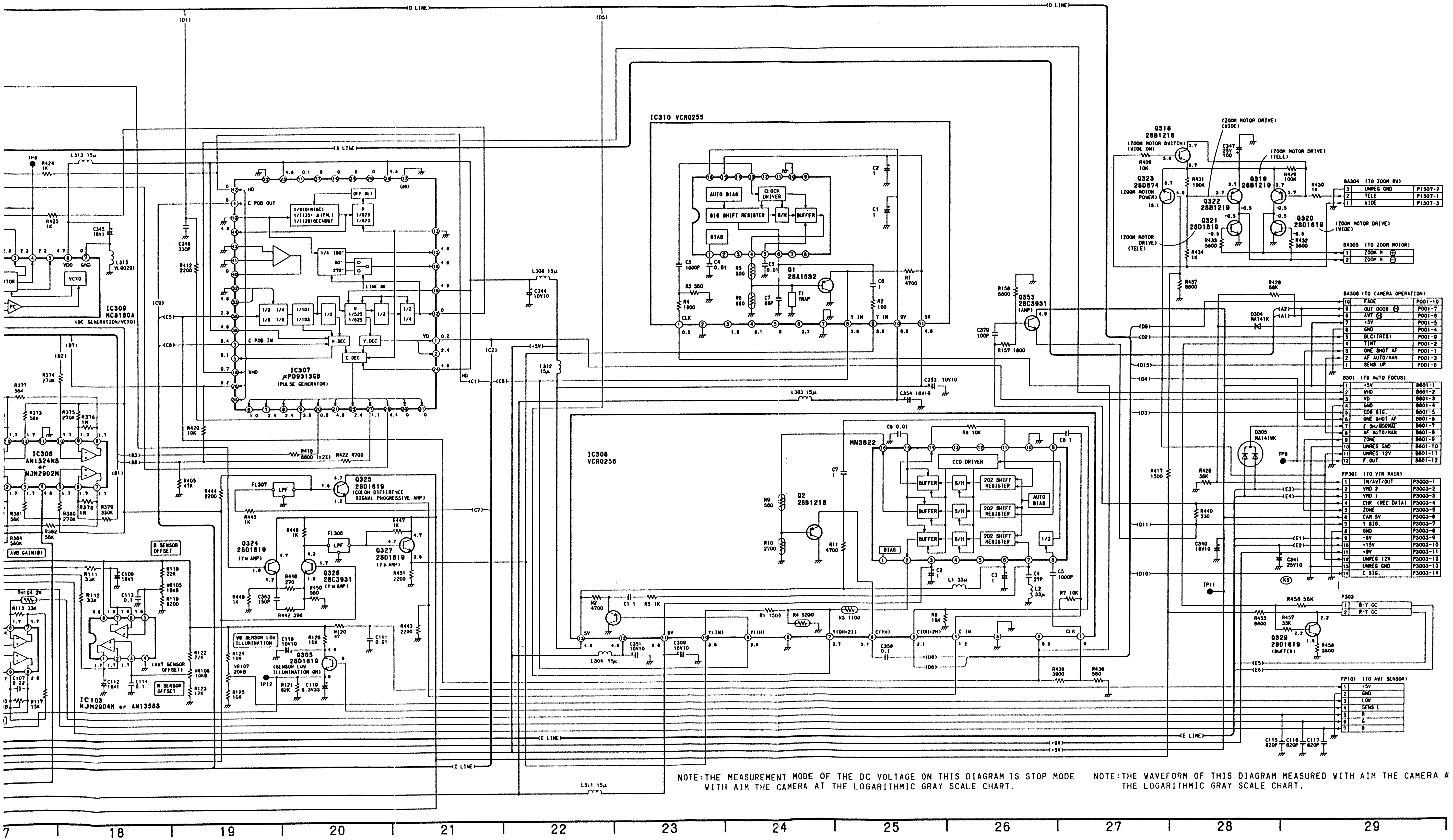
18
19


D LINE
A LINE
C LINE
E LINE
IC310 VCR0255
AUTO BIAS
CLOCK DRIVER
616 SHIFT RESISTER
S/H
BUFFER
BIAS
Q1 2SA1532
T1 TRAP
IC307 μPD93136B (PULSE GENERATOR)
H.DEC
V.DEC
C.DEC
OFF SET
1/4 180°
90° 270°
LINE SW
IC309 MC8180A (SC GENERATION/VCXO)
VCXO
IC306 AN1324NB or NJM2902M
AVB GAIN(B)
IC103 NJM2904M or AN13588
B SENSOR OFFSET
R SENSOR OFFSET
AVT SENSOR OFFSET
WB SENSOR LOW ILLUMINATION
Q303 2SD1819 (SENSOR LOW ILLUMINATION ON)
Q324 2SD1819 (Y H AMP)
Q326 2SC3931 (Y H AMP)
Q327 2SD1819 (Y H AMP)
Q325 2SD1819 (COLOR DIFFERENCE SIGNAL PROGRESSIVE AMP)
FL307 LPF
FL306 LPF
IC308 VCR0256
MN3822
CCD DRIVER
202 SHIFT RESISTER
AUTO BIAS
Q2 2SB1218
Q353 2SC3931 (AMP)
Q318 2SB1218 (ZOOM MOTOR SWITCH) (WIDE ON)
Q323 2SD874 (ZOOM MOTOR POWER)
Q322 2SB1219
Q319 2SB1219
Q321 2SD1819
Q320 2SD1819
(ZOOM MOTOR DRIVE) (WIDE)
(ZOOM MOTOR DRIVE) (TELE)
D304 MA141K
D305 MA141WK
TP8
TP9
TP11
TP12
Q329 2SD1819 (BUFFER)
BA304 (TO ZOOM SW)
3 UNREG GND P1507-2
2 TELE P1507-1
1 WIDE P1507-3
BA305 (TO ZOOM MOTOR)
1 ZOOM M ⊕
2 ZOOM M ⊖
BA306 (TO CAMERA OPERATION)
10 FADE P001-10
9 OUT DOOR P001-7
8 AWT P001-6
7 +5V P001-5
6 GND P001-4
5 BLC(IRIS) P001-9
4 TINT P001-2
3 ONE SHOT AF P001-1
2 AF AUTO/MAN P001-3
1 SENS UP P001-8
B301 (TO AUTO FOCUS)
1 +5V B601-1
2 WHD B601-2
3 VD B601-3
4 GND B601-4
5 CDS SIG. B601-5
6 ONE SHOT AF B601-6
7 E.SH/NORMAL B601-7
8 AF AUTO/MAN B601-8
9 ZONE B601-9
10 UNREG GND B601-10
11 UNREG 12V B601-11
12 F.OUT B601-12
FP301 (TO VTR MAIN)
1 IN/AWT/OUT P3003-1
2 VMD 2 P3003-2
3 VMD 1 P3003-3
4 CHR (REC DATA) P3003-4
5 ZONE P3003-5
6 CAM 5V P3003-6
7 Y SIG. P3003-7
8 GND P3003-8
9 -8V P3003-9
10 +15V P3003-10
11 +9V P3003-11
12 UNREG 12V P3003-12
13 UNREG GND P3003-13
14 C SIG. P3003-14
P303
1 B-Y GC
2 R-Y GC
FP101 (TO AWT SENSOR)
1 +5V
2 GND
3 LOW
4 SENS L
5 R
6 G
7 B
+9V
+5V
17
18
19
20
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27
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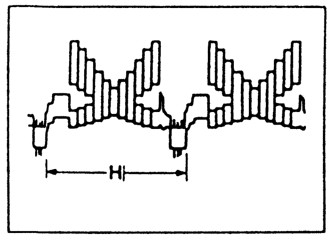
29

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

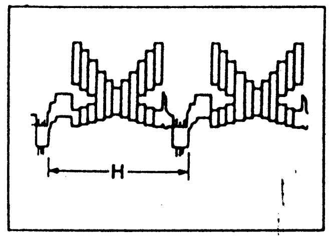
NOTE: THE WAVEFORM OF THIS DIAGRAM MEASURED WITH AIM THE CAMERA A THE LOGARITHMIC GRAY SCALE CHART.

3-13. PROCESS C.B.A. (VEP23080A) & ENCODER PACK C.B.A. (VEP23060C)

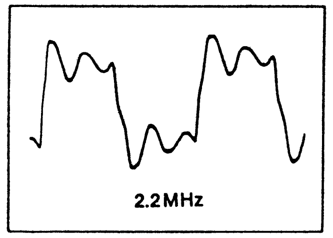
**PROCESS CIRCUIT TP (Test Point)
WAVE FORM (REF. NO. 300 Series)**



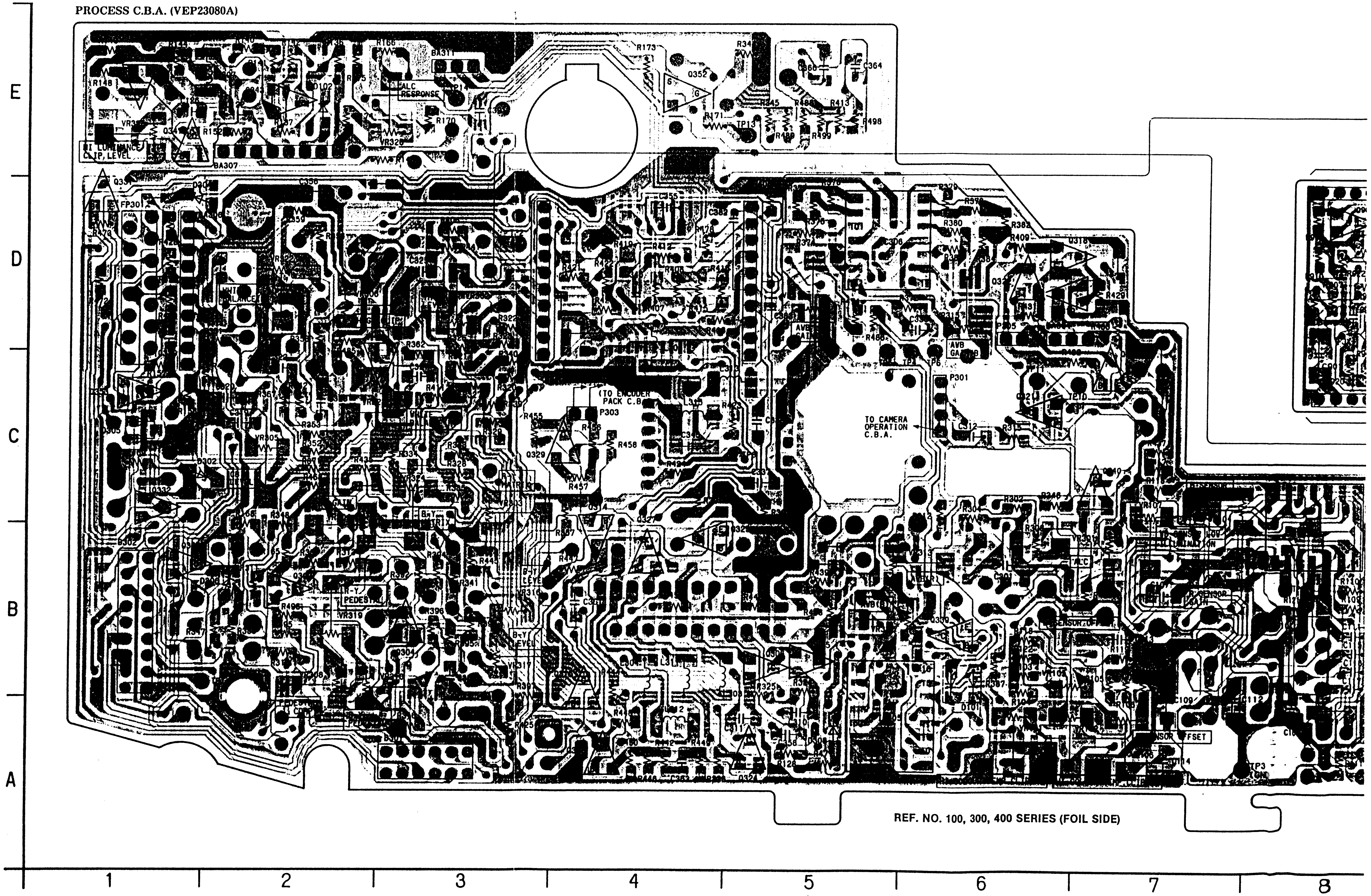
TP301 STOP
0.1V/20μsec. div. 0.35Vp-p

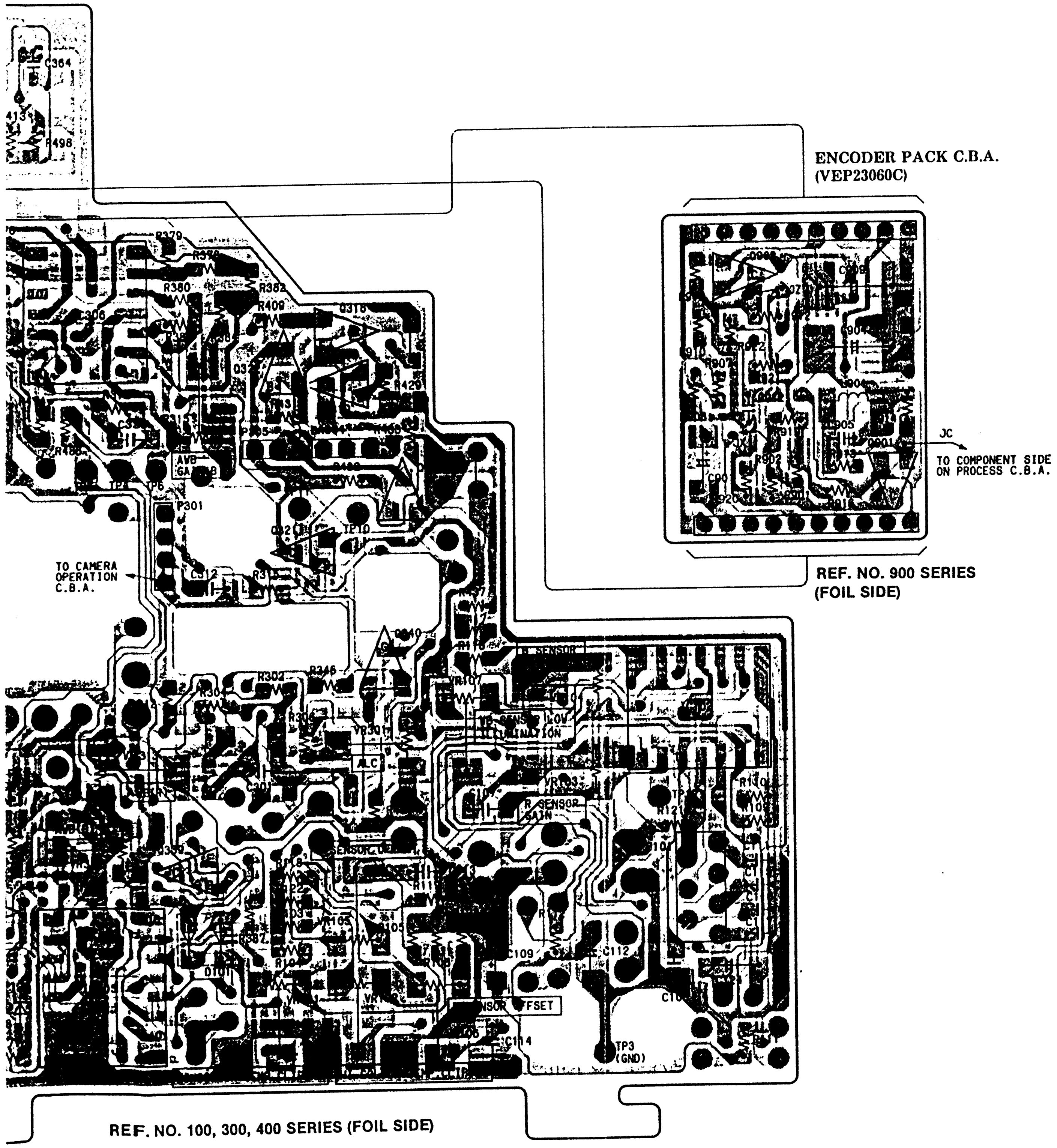


TP302 STOP
0.1V/20μsec. div. 0.38Vp-p



TP308 STOP
2.0V/50nsec. div. 7Vp-p

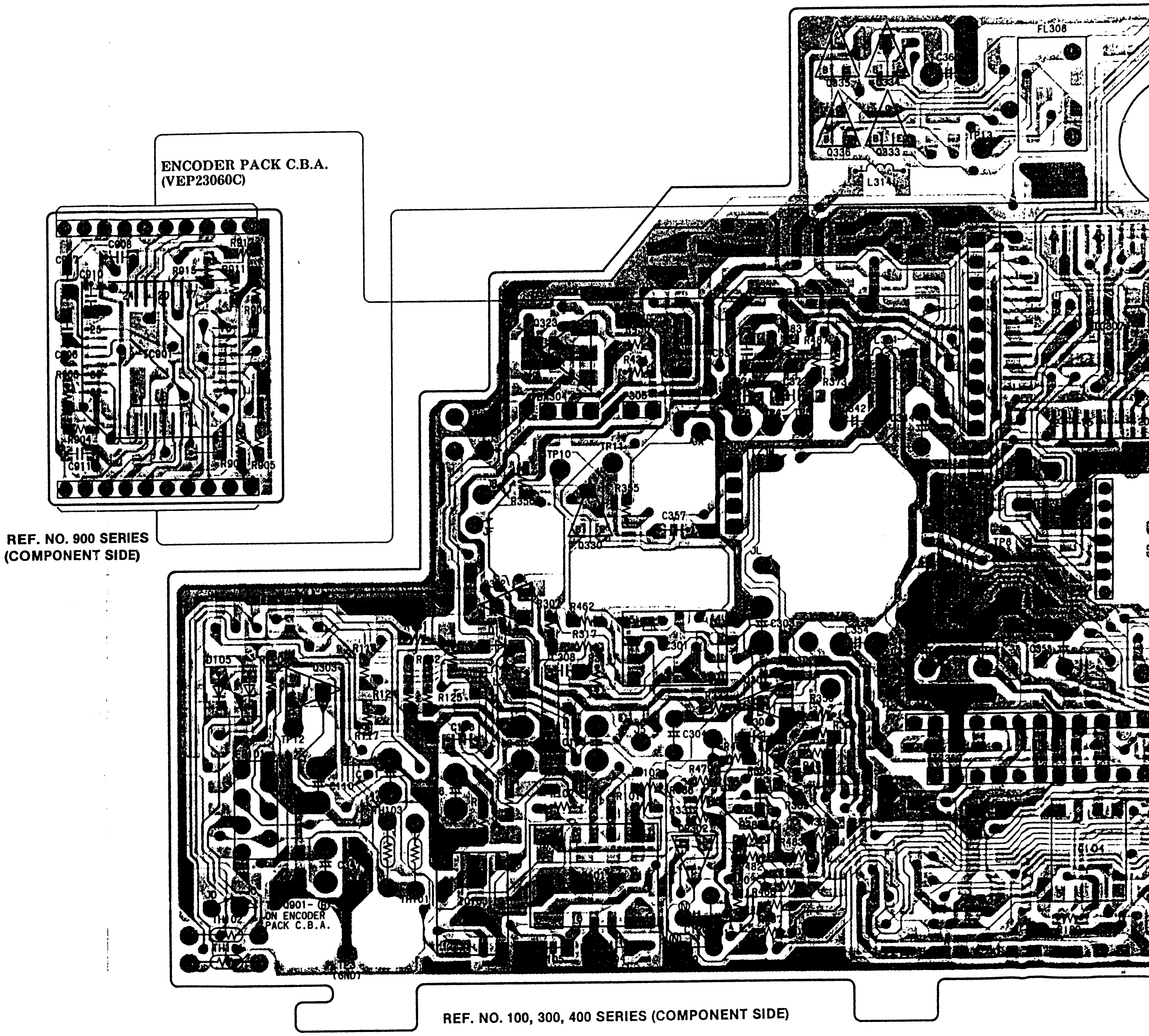

PROCESS C.B.A. (VEP23080A)
E
D
C
B
A
1
2
3
4
5
6
7
8
(TO ENCODER PACK C.B.)
P303
TO CAMERA OPERATION C.B.A.
P301
ALC RESPONSE
WHITE BALANCE
AVB GAIN
R-Y/ PEDESTAL
B-Y LEVEL
SENSOR OFFSET
REF. NO. 100, 300, 400 SERIES (FOIL SIDE)


C364
R498
R379
R380
R382
R409
Q318
R429
AVB GAIN
P301
TP1
TP6
TP10
C312
R315
TO CAMERA OPERATION C.B.A.
R304
R346
Q340
VR301
ALC
SENSOR
SENSOR LOW ILLUMINATION
R SENSOR GAIN
R121
R105
D101
SENSOR OFFSET
C109
C112
C114
TP3 (GND)
JC
TO COMPONENT SIDE ON PROCESS C.B.A.
R902
R905
C908

ENCODER PACK C.B.A. (VEP23060C)

REF. NO. 900 SERIES (FOIL SIDE)

REF. NO. 100, 300, 400 SERIES (FOIL SIDE)

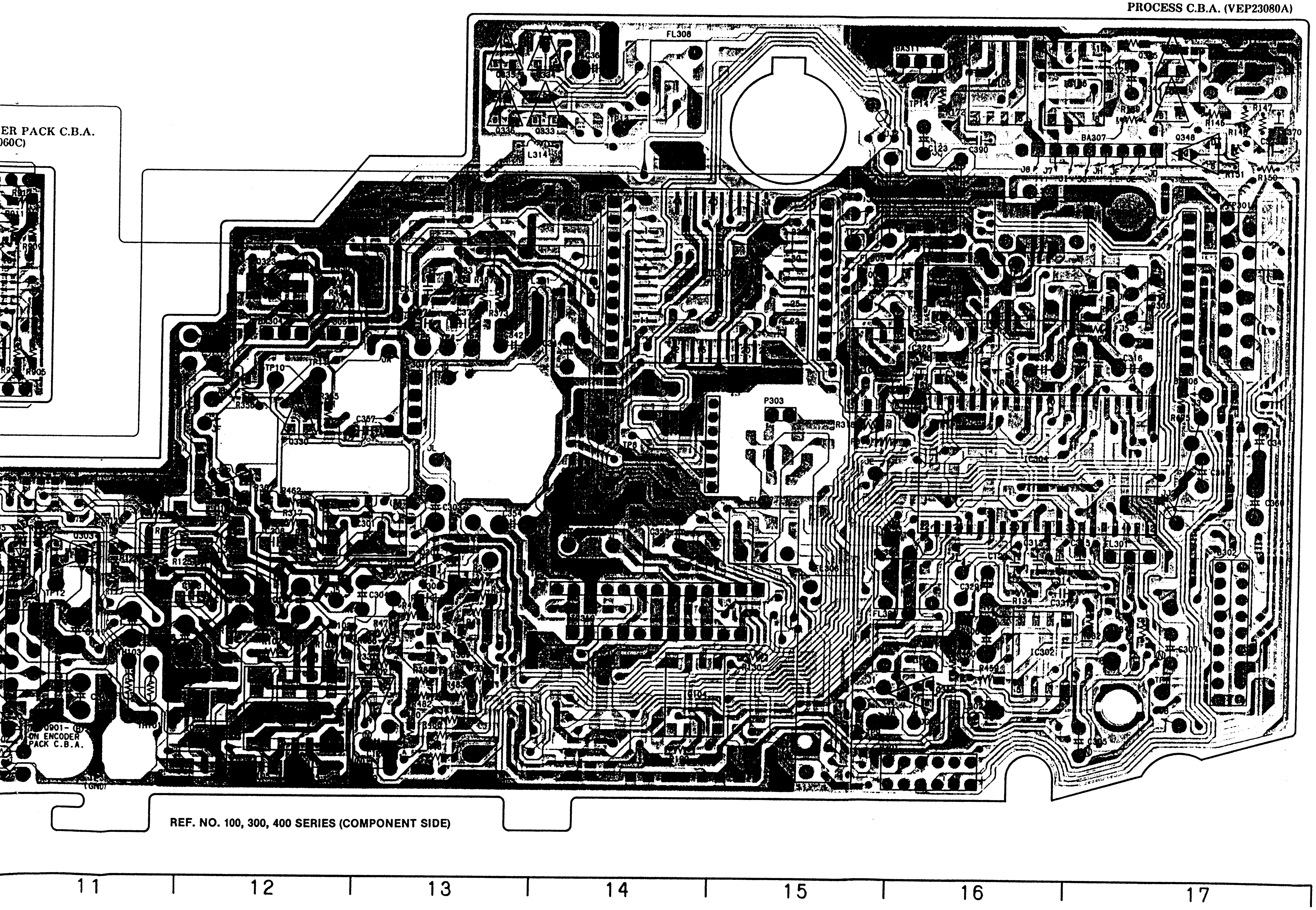

FL308
Q335
Q334
Q336
Q333
L314
C908
C910
R915
R911
R912
IC901
R904
R905
Q323
R373
R305
TP10
TP13
R355
C357
Q330
TP8
R462
R317
D105
Q303
R125
TP12
C304
R47
R103
C101
TH101
IC901 - ON ENCODER PACK C.B.A.
(GND)

ENCODER PACK C.B.A. (VEP23060C)

REF. NO. 900 SERIES (COMPONENT SIDE)

REF. NO. 100, 300, 400 SERIES (COMPONENT SIDE)

6 7 8 9 10 11 12 13 14


PROCESS C.B.A. (VEP23080A)
ER PACK C.B.A.
060C)
FL308
BA311
BA307
Q348
R146
R147
R150
R131
L314
Q333
Q336
C390
P303
TP10
C357
Q330
FL301
IC302
R134
C307
R130
Q901
ON ENCODER
PACK C.B.A.
(GND)
REF. NO. 100, 300, 400 SERIES (COMPONENT SIDE)
11
12
13
14
15
16
17

PROCESS & ENCODER PACK C.B.A.

Transistor	
Q301	B-13 Ⓒ
Q302	C-12 Ⓒ
Q303	B-11 Ⓒ
Q304	B-3 Ⓕ
Q305	B-5 Ⓕ
Q306	B-5 Ⓕ
Q307	B-2 Ⓕ
Q308	B-1 Ⓕ
Q311	D-3 Ⓕ
Q314	C-4 Ⓕ
Q315	B-4 Ⓕ
Q316	B-16 Ⓒ
Q318	D-6 Ⓕ
Q319	D-7 Ⓕ
Q320	C-7 Ⓕ
Q321	C-6 Ⓕ
Q322	D-6 Ⓕ
Q323	D-12 Ⓒ
Q324	A-5 Ⓕ
Q325	B-4 Ⓕ
Q327	B-4 Ⓕ
Q328	A-4 Ⓕ
Q329	C-4 Ⓕ
Q330	C-12 Ⓒ
Q331	D-1 Ⓕ
Q332	C-1 Ⓕ
Q333	E-13 Ⓒ
Q334	E-13 Ⓒ
Q335	E-13 Ⓒ
Q336	E-13 Ⓒ
Q339	B-6 Ⓕ
Q340	C-7 Ⓕ
Q343	E-2 Ⓕ
Q344	E-17 Ⓒ
Q345	E-17 Ⓒ
Q346	E-1 Ⓕ
Q347	E-1 Ⓕ
Q348	E-17 Ⓒ
Q352	E-4 Ⓕ
Q353	C-1 Ⓕ
Q901	C-9 Ⓕ
Q902	D-6 Ⓕ

Transistor & Resistor	
QR302	B-13 Ⓒ

Integrated Circuit	
IC101	A-12 Ⓒ
IC102	B-8 Ⓕ
IC103	A-12 Ⓒ
IC104	B-14 Ⓒ
IC105	E-16 Ⓒ
IC106	E-16 Ⓒ
IC301	B-13 Ⓒ
IC302	B-16 Ⓒ
IC303	C-15 Ⓒ
IC304	C-16 Ⓒ
IC305	A-5 Ⓕ
IC306	D-5 Ⓕ
IC307	D-15 Ⓒ
IC308	B-14 Ⓒ
IC309	C-14 Ⓒ
IC310	B-14 Ⓒ
IC901	D-10 Ⓒ

Test Point	
TP1	B-2 Ⓕ
TP1	B-17 Ⓒ
TP2	D-3 Ⓕ
TP2	D-15 Ⓒ
TP3	A-8 Ⓕ
TP3	A-11 Ⓒ
TP4	C-6 Ⓕ
TP4	C-13 Ⓒ
TP5	C-5 Ⓕ
TP5	C-13 Ⓒ
TP6	C-6 Ⓕ
TP6	C-13 Ⓒ
TP7	D-2 Ⓕ
TP7	D-16 Ⓒ
TP8	C-5 Ⓕ
TP8	C-14 Ⓒ
TP9	A-3 Ⓕ
TP9	A-15 Ⓒ
TP10	C-7 Ⓕ
TP10	C-12 Ⓒ
TP11	C-6 Ⓕ
TP11	C-12 Ⓒ
TP12	B-8 Ⓕ
TP12	B-11 Ⓒ
TP13	E-5 Ⓕ
TP13	E-14 Ⓒ
TP14	E-3 Ⓕ
TP14	E-16 Ⓒ

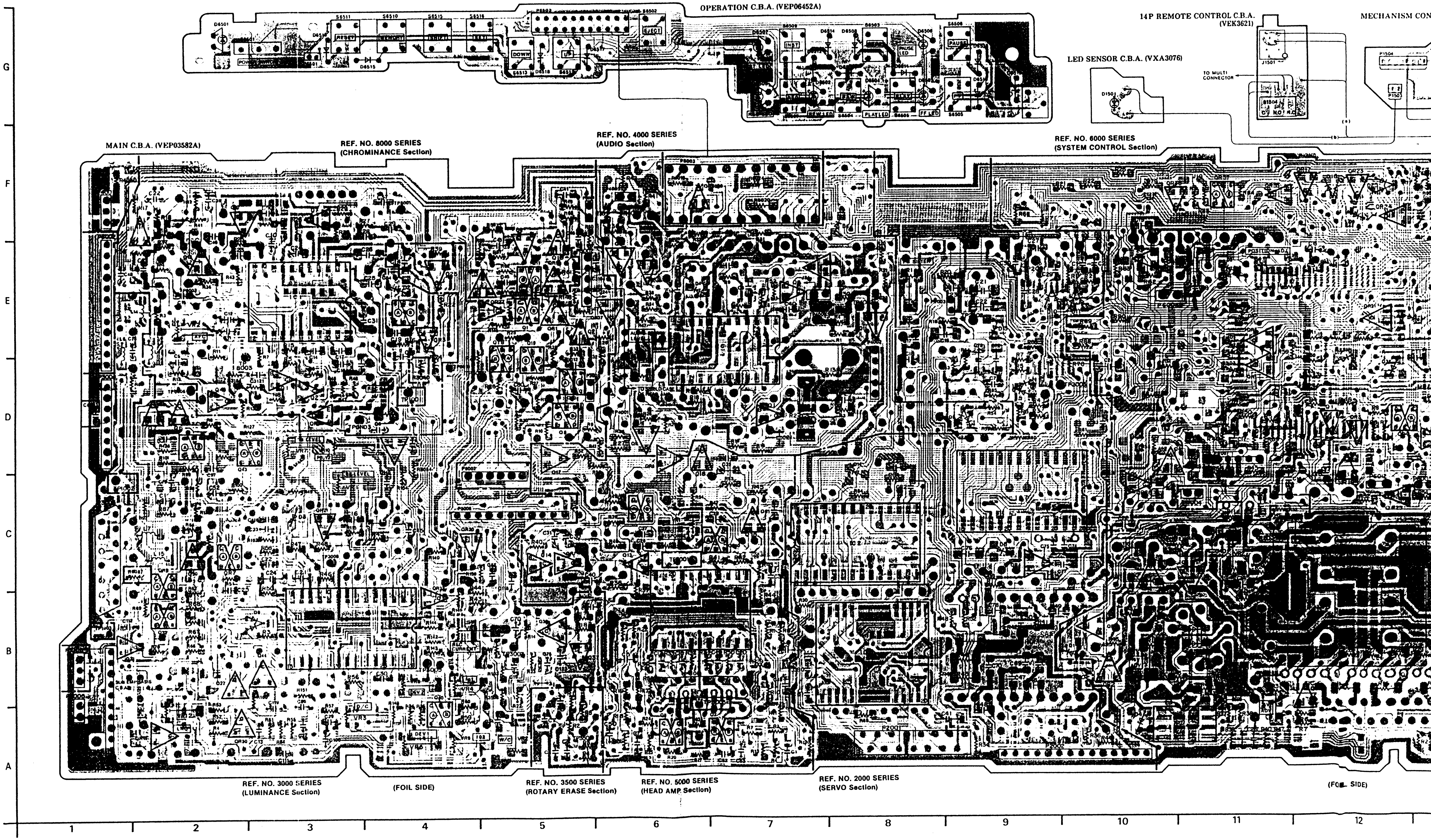
Adjustment	
VR101	A-6 Ⓕ
VR102	B-6 Ⓕ
VR103	B-7 Ⓕ
VR104	C-7 Ⓕ
VR105	B-6 Ⓕ
VR106	A-7 Ⓕ
VR107	C-7 Ⓕ
VR301	B-7 Ⓕ
VR302	D-3 Ⓕ
VR303	C-3 Ⓕ
VR304	C-2 Ⓕ
VR305	C-2 Ⓕ
VR306	D-2 Ⓕ
VR308	B-2 Ⓕ
VR312	B-5 Ⓕ
VR313	B-6 Ⓕ
VR314	D-5 Ⓕ
VR315	D-6 Ⓕ
VR316	B-3 Ⓕ
VR317	B-3 Ⓕ
VR318	B-3 Ⓕ
VR319	B-2 Ⓕ
VR322	D-2 Ⓕ
VR323	C-3 Ⓕ
VR324	C-3 Ⓕ
VR325	E-1 Ⓕ
VR326	E-3 Ⓕ

Connector	
B301	A-3 Ⓕ
B301	A-16 Ⓒ
B302	B-1 Ⓕ
B302	B-17 Ⓒ
BA304	D-6 Ⓕ
BA304	D-12 Ⓒ
BA306	D-1 Ⓕ
BA306	C-17 Ⓒ
BA307	E-2 Ⓕ
BA307	E-17 Ⓒ
BA311	E-3 Ⓕ
BA311	E-16 Ⓒ
FP101	B-8 Ⓕ
FP101	B-11 Ⓒ
FP301	D-1 Ⓕ
FP301	D-17 Ⓒ
P301	C-6 Ⓕ
P301	C-13 Ⓒ
P303	C-4 Ⓕ
P303	C-15 Ⓒ
P305	D-6 Ⓕ
P305	D-12 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

Next Page:
MAIN & OPERATION Section

3-14. MAIN [POWER SUPPLY, SYSTEM CONTROL, SERVO, LUMINANCE & CHROMINANCE, HEAD AMP AUDIO Section] C.B.A. (VEP03582A), OPERATION C.B.A. (VEP06452A) & SUB EMPHASIS C.B.A. (VEP03597A)


OPERATION C.B.A. (VEP06452A)
14P REMOTE CONTROL C.B.A. (VEK3621)
MECHANISM CON
LED SENSOR C.B.A. (VXA3076)
TO MULTI CONNECTOR
MAIN C.B.A. (VEP03582A)
REF. NO. 8000 SERIES (CHROMINANCE Section)
REF. NO. 4000 SERIES (AUDIO Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 3000 SERIES (LUMINANCE Section)
(FOIL SIDE)
REF. NO. 3500 SERIES (ROTARY ERASE Section)
REF. NO. 5000 SERIES (HEAD AMP Section)
REF. NO. 2000 SERIES (SERVO Section)
(FOIL SIDE)
G
F
E
D
C
B
A
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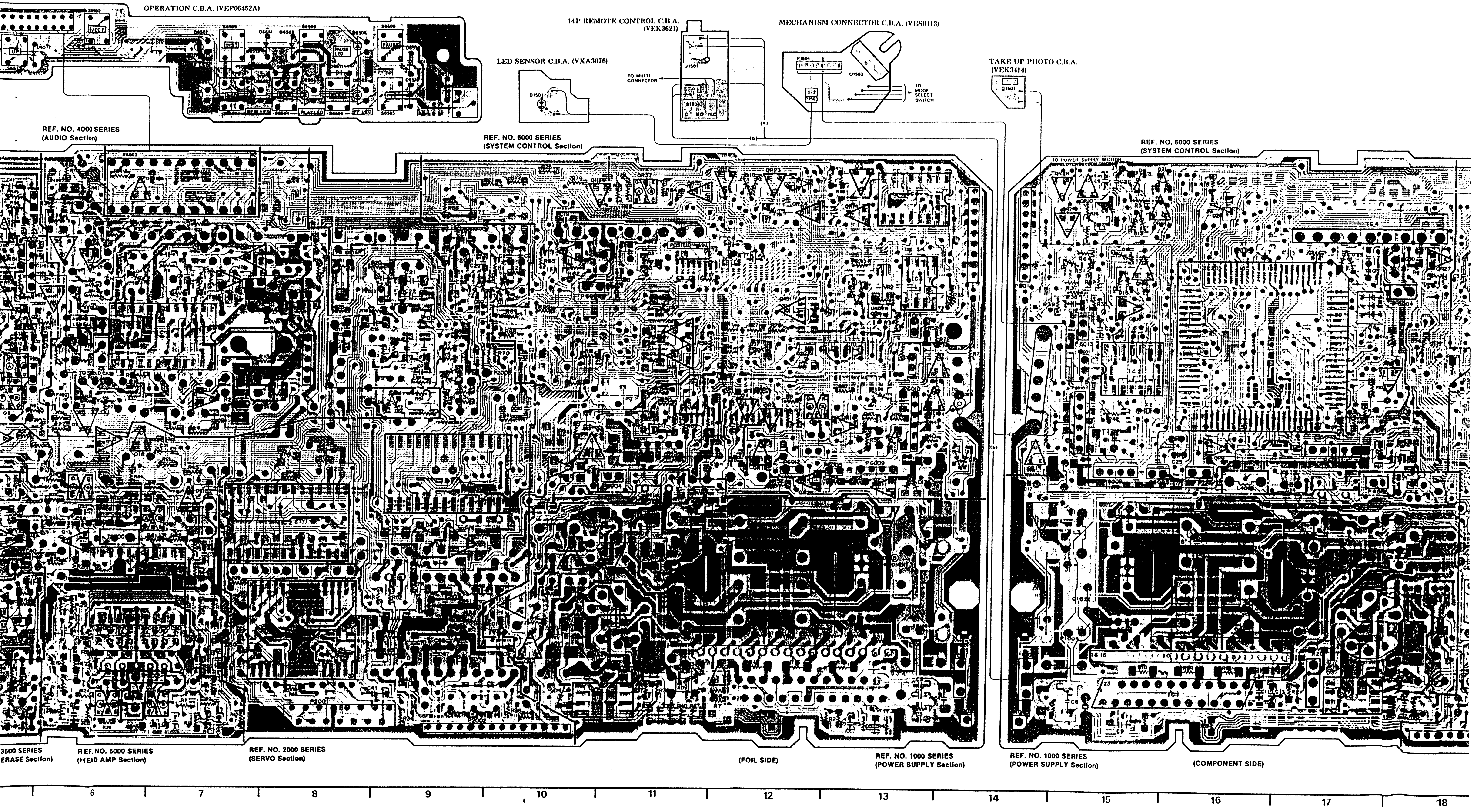
MINANCE & CHROMINANCE, HEAD AMP AUDIO Section|
B EMPHASIS C.B.A. (VEP03597A)


OPERATION C.B.A. (VEP06452A)
EJECT
INST
PAUSE
PAUSE LED
REW LED
PLAY LED
FF LED
REC LED
14P REMOTE CONTROL C.B.A. (VEK3621)
J1501
TO MULTI CONNECTOR
LED SENSOR C.B.A. (VXA3076)
D1501
MECHANISM CONNECTOR C.B.A. (VES0413)
P1504
Q1503
P1503
TO MODE SELECT SWITCH
TAKE UP PHOTO C.B.A. (VEK3414)
Q1601
(a)
(b)
REF. NO. 4000 SERIES (AUDIO Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
REF. NO. 6000 SERIES (SYSTEM CONTROL Section)
TO POWER SUPPLY SECTION
3500 SERIES ERASE Section)
REF. NO. 5000 SERIES (HEAD AMP Section)
REF. NO. 2000 SERIES (SERVO Section)
(FOIL SIDE)
REF. NO. 1000 SERIES (POWER SUPPLY Section)
REF. NO. 1000 SERIES (POWER SUPPLY Section)
(COMPONENT SIDE)
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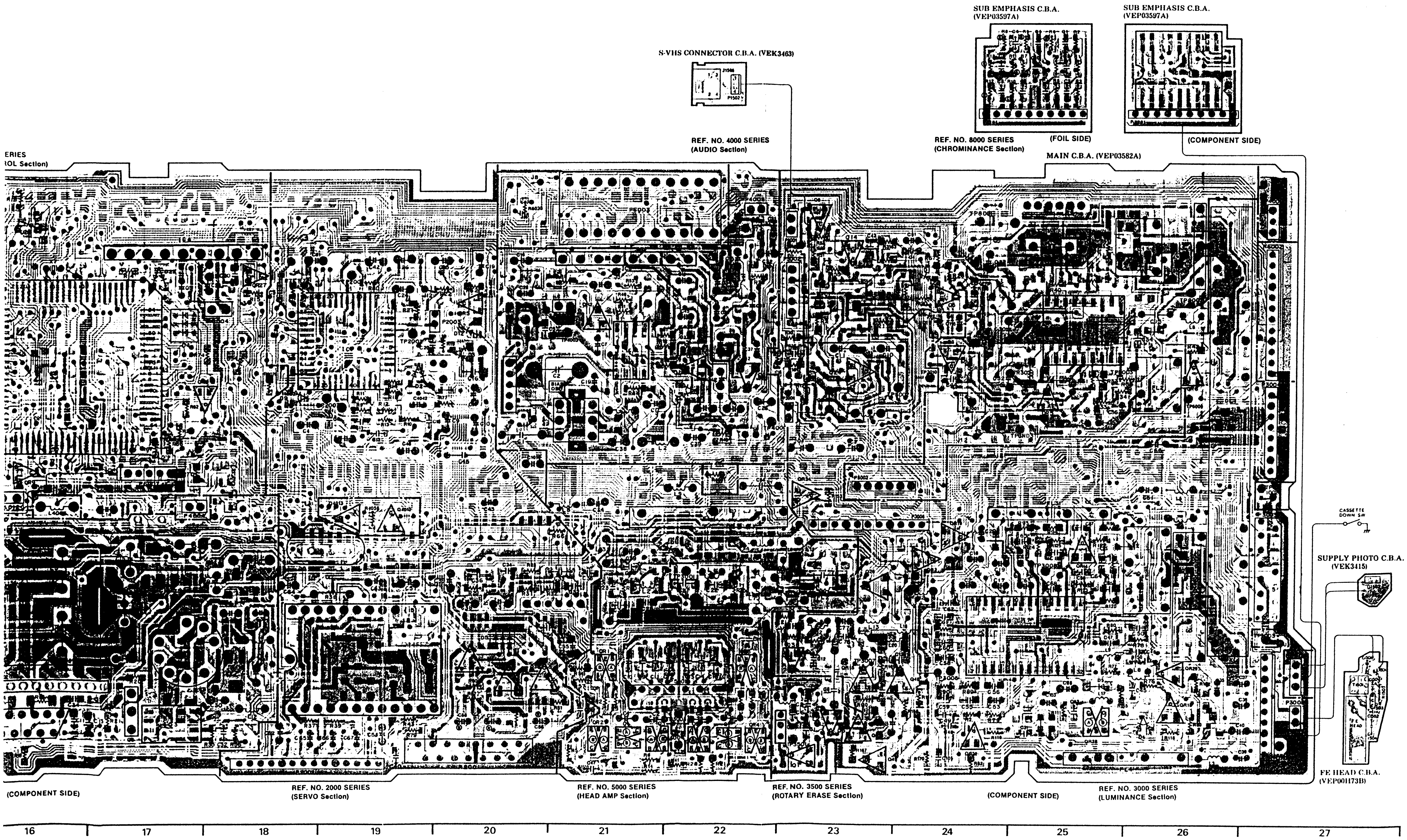
S-VHS CONNECTOR C.B.A. (VEK3463)
SUB EMPHASIS C.B.A.
(VEP03597A)
SUB EMPHASIS C.B.A.
(VEP03597A)
REF. NO. 4000 SERIES
(AUDIO Section)
REF. NO. 8000 SERIES
(CHROMINANCE Section)
(FOIL SIDE)
(COMPONENT SIDE)
MAIN C.B.A. (VEP03582A)
ERIES
OL Section)
CASSETTE DOWN SW
SUPPLY PHOTO C.B.A.
(VEK3415)
FE HEAD C.B.A.
(VEP00H73B)
(COMPONENT SIDE)
REF. NO. 2000 SERIES
(SERVO Section)
REF. NO. 5000 SERIES
(HEAD AMP Section)
REF. NO. 3500 SERIES
(ROTARY ERASE Section)
(COMPONENT SIDE)
REF. NO. 3000 SERIES
(LUMINANCE Section)
16
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27

POWER SUPPLY Section

Transistor	
Q1001	B-12 Ⓕ
Q1002	C-14 Ⓒ
Q1003	A-17 Ⓒ
Q1004	C-13 Ⓕ
Q1005	B-11 Ⓕ
Q1007	C-11 Ⓕ

Transistor & Resistor	
QR1001	B-10 Ⓕ
QR1002	B-10 Ⓕ

Integrated Circuit	
IC1001	A-16 Ⓒ
IC1002	B-16 Ⓒ
IC1003	A-17 Ⓒ
IC1004	A-11 Ⓕ

Test Point	
TP1001	D-4 Ⓕ
TP1001	D-24 Ⓒ
TP1002	C-1 Ⓕ
TP1002	C-27 Ⓒ
TP1003	B-1 Ⓕ
TP1003	B-27 Ⓒ
TP1004	B-13 Ⓕ
TP1004	B-15 Ⓒ

Adjustment	
VR1001	B-10 Ⓕ
VR1002	C-11 Ⓕ
VR1003	B-11 Ⓕ

Connector	
P1001	B-14 Ⓕ
P1001	B-14 Ⓒ
P1003	A-14 Ⓕ
P1003	A-14 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SERVO Section

Transistor	
Q2001	B-20 Ⓒ
Q2002	B-20 Ⓒ
Q2003	B-20 Ⓒ

Transistor & Resistor	
QR2004	C-9 Ⓕ
QR2005	E-20 Ⓒ

Integrated Circuit	
IC2001	E-19 Ⓒ
IC2002	C-8 Ⓕ
IC2005	B-19 Ⓒ
IC2006	B-8 Ⓕ
IC2007	C-9 Ⓕ

Test Point	
TP2001	E-9 Ⓕ
TP2001	E-19 Ⓒ
TP2002	E-9 Ⓕ
TP2002	E-19 Ⓒ
TP2003	D-9 Ⓕ
TP2003	D-19 Ⓒ

Adjustment	
VR2001	E-8 Ⓕ

Connector	
P2001	A-8 Ⓕ
P2001	A-20 Ⓒ
P2002	A-9 Ⓕ
P2002	A-18 Ⓒ
P2003	E-8 Ⓕ
P2003	E-20 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

SYSTEM CONTROL Section

Transistor	
Q1501	G-14
Q1502	C-27
Q1503	G-13
Q3501	A-23 Ⓒ
Q3502	A-23 Ⓒ
Q3503	A-23 Ⓒ
Q6001	D-12 Ⓕ
Q6002	C-13 Ⓕ
Q6003	F-13 Ⓕ
Q6004	D-10 Ⓕ
Q6005	E-10 Ⓕ

Transistor & Resistor	
QR6001	D-11 Ⓕ
QR6003	D-12 Ⓕ
QR6004	D-12 Ⓕ
QR6005	E-11 Ⓕ
QR6006	D-17 Ⓒ
QR6009	D-16 Ⓒ
QR6010	F-15 Ⓒ
QR6011	C-14 Ⓒ
QR6012	D-13 Ⓕ
QR6013	D-13 Ⓕ
QR6014	F-13 Ⓕ
QR6015	E-15 Ⓒ
QR6016	D-13 Ⓕ
QR6017	F-12 Ⓕ
QR6018	F-15 Ⓒ
QR6019	C-12 Ⓕ
QR6023	F-12 Ⓕ
QR6024	F-12 Ⓕ
QR6025	C-12 Ⓕ
QR6026	C-10 Ⓕ
QR6027	E-18 Ⓒ
QR6028	F-15 Ⓒ
QR6029	F-15 Ⓒ
QR6030	E-15 Ⓒ
QR6031	E-12 Ⓕ
QR6033	F-6 Ⓕ
QR6035	F-11 Ⓕ
QR6036	F-10 Ⓕ
QR6037	F-11 Ⓕ

Integrated Circuit	
IC6001	D-16 Ⓒ
IC6002	D-15 Ⓒ
IC6003	E-13 Ⓕ
IC6004	F-17 Ⓒ
IC6005	F-13 Ⓕ

Test Point	
TP3501	A-5 Ⓕ
TP3501	A23 Ⓒ
TP6006	D-2 Ⓕ
TP6006	D-26 Ⓒ

Adjustment	
VR6001	E-11 Ⓕ
VR6002	E-13 Ⓕ

Connector	
P1503	G-12
P1504	G-12
P6001	D-13 Ⓕ
P6001	D-15 Ⓒ
P6002	F-1 Ⓕ
P6002	F-27 Ⓒ
P6003	F-6 Ⓕ
P6003	F-21 Ⓒ
P6004	E-10 Ⓕ
P6004	E-18 Ⓒ
P6005	C-13 Ⓕ
P6005	C-15 Ⓒ
P6006	B-1 Ⓕ
P6006	B-27 Ⓒ
P6007	D-11 Ⓕ
P6007	D-17 Ⓒ
P6009	C-13 Ⓕ
P6009	C-15 Ⓒ
P6010	D-13 Ⓕ
P6010	D-15 Ⓒ
P6011	F-14 Ⓕ
P6011	E-14 Ⓒ
P6012	C-12 Ⓕ
P6012	C-16 Ⓒ
P6013	E-13 Ⓕ
P6013	E-15 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

AUDIO Section

Transistor	
Q1503	B-27
Q4001	D-7 Ⓕ
Q4002	E-22 Ⓒ
Q4003	E-22 Ⓒ
Q4005	E-7 Ⓕ
Q4007	E-6 Ⓕ
Q4009	D-6 Ⓕ
Q4011	E-8 Ⓕ
Q4012	C-19 Ⓒ
Q4013	C-19 Ⓒ

Transistor & Resistor	
QR4002	E-21 Ⓒ
QR4004	E-6 Ⓕ
QR4008	E-7 Ⓕ

Integrated Circuit	
IC4001	E-21 Ⓒ
IC4002	E-7 Ⓕ
IC4003	F-21 Ⓒ

Test Point	
TP4001	D-6 Ⓕ
TP4001	D-22 Ⓒ
TP4002	E-8 Ⓕ
TP4002	E-20 Ⓒ
TP4003	E-7 Ⓕ
TP4003	E-21 Ⓒ

Adjustment	
C4002	E-21 Ⓒ
VR4001	D-6 Ⓕ

Connector	
P4001	F-1 Ⓕ
P4001	F-27 Ⓒ
P4002	E-8 Ⓕ
P4002	D-20 Ⓒ
P4003	E-7 Ⓕ
P4003	E-21 Ⓒ
P4004	C-11 Ⓕ
P4004	C-17 Ⓒ
P4005	F-6 Ⓕ
P4005	F-22 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

LUMINANCE, CHROMINANCE & HEAD AMP Section

Transistor	
Q3001	E-5 Ⓕ
Q3006	D-2 Ⓕ
Q3007	D-2 Ⓕ
Q3008	D-5 Ⓕ
Q3010	D-5 Ⓕ
Q3018	E-5 Ⓕ
Q3019	E-5 Ⓕ
Q3021	E-5 Ⓕ
Q3024	E-23 Ⓒ
Q3025	E-4 Ⓕ
Q3026	C-23 Ⓒ
Q3027	B-2 Ⓕ
Q3030	C-2 Ⓕ
Q3031	B-1 Ⓕ
Q3032	B-2 Ⓕ
Q3035	D-4 Ⓕ
Q3036	B-5 Ⓕ
Q3037	B-5 Ⓕ
Q3038	B-23 Ⓒ
Q3040	A-4 Ⓕ
Q3042	D-2 Ⓕ
Q3043	D-2 Ⓕ
Q3044	B-3 Ⓕ
Q3045	A-23 Ⓒ
Q3046	B-24 Ⓒ
Q5001	A-21 Ⓒ
Q5002	A-7 Ⓕ
Q5003	A-21 Ⓒ
Q5007	A-22 Ⓒ
Q5008	A-6 Ⓕ
Q5009	A-22 Ⓒ
Q5013	C-6 Ⓕ
Q5014	C-5 Ⓕ
Q5015	C-7 Ⓕ
Q5017	D-5 Ⓕ
Q5018	D-6 Ⓕ
Q8001	D-3 Ⓕ
Q8002	D-3 Ⓕ
Q8003	E-24 Ⓒ
Q8004	D-2 Ⓕ
Q8005	E-24 Ⓒ
Q8006	F-2 Ⓕ
Q8007	F-3 Ⓕ
Q8008	F-23 Ⓒ
Q8009	E-5 Ⓕ
Q8010	E-5 Ⓕ
Q8011	E-5 Ⓕ
Q8012	F-2 Ⓕ
Q8013	E-2 Ⓕ
Q8014	F-23 Ⓒ

Transistor & Resistor	
QR3001	E-5 Ⓕ
QR3002	C-24 Ⓒ
QR3006	D-26 Ⓒ
QR3007	C-2 Ⓕ
QR3009	C-2 Ⓕ
QR3011	A-2 Ⓕ
QR3014	C-25 Ⓒ
QR3015	B-23 Ⓒ
QR3016	A-23 Ⓒ
QR3018	B-26 Ⓒ
QR3019	C-24 Ⓒ
QR3020	C-4 Ⓕ
QR3021	C-3 Ⓕ
QR3022	A-24 Ⓒ
QR3027	E-5 Ⓕ
QR3028	A-25 Ⓒ
QR3029	B-26 Ⓒ
QR3030	A-2 Ⓕ
QR3032	B-4 Ⓕ
QR3034	C-23 Ⓒ
QR3035	D-4 Ⓕ
QR3037	E-6 Ⓕ
QR5001	B-21 Ⓒ
QR5002	A-21 Ⓒ
QR5003	B-22 Ⓒ
QR5004	A-22 Ⓒ
QR5005	C-6 Ⓕ
QR5007	C-5 Ⓕ
QR5008	D-6 Ⓕ
QR5010	C-7 Ⓕ
QR8001	E-5 Ⓕ
QR8003	E-4 Ⓕ
QR8004	E-4 Ⓕ
QR8005	D-25 Ⓒ
QR8006	E-5 Ⓕ
QR8007	D-3 Ⓕ

Integrated Circuit	
IC3001	B-3 Ⓕ
IC3002	C-25 Ⓒ
IC3201	G-26 Ⓒ
IC5001	B-6 Ⓕ
IC8001	E-3 Ⓕ
IC8002	E-25 Ⓒ

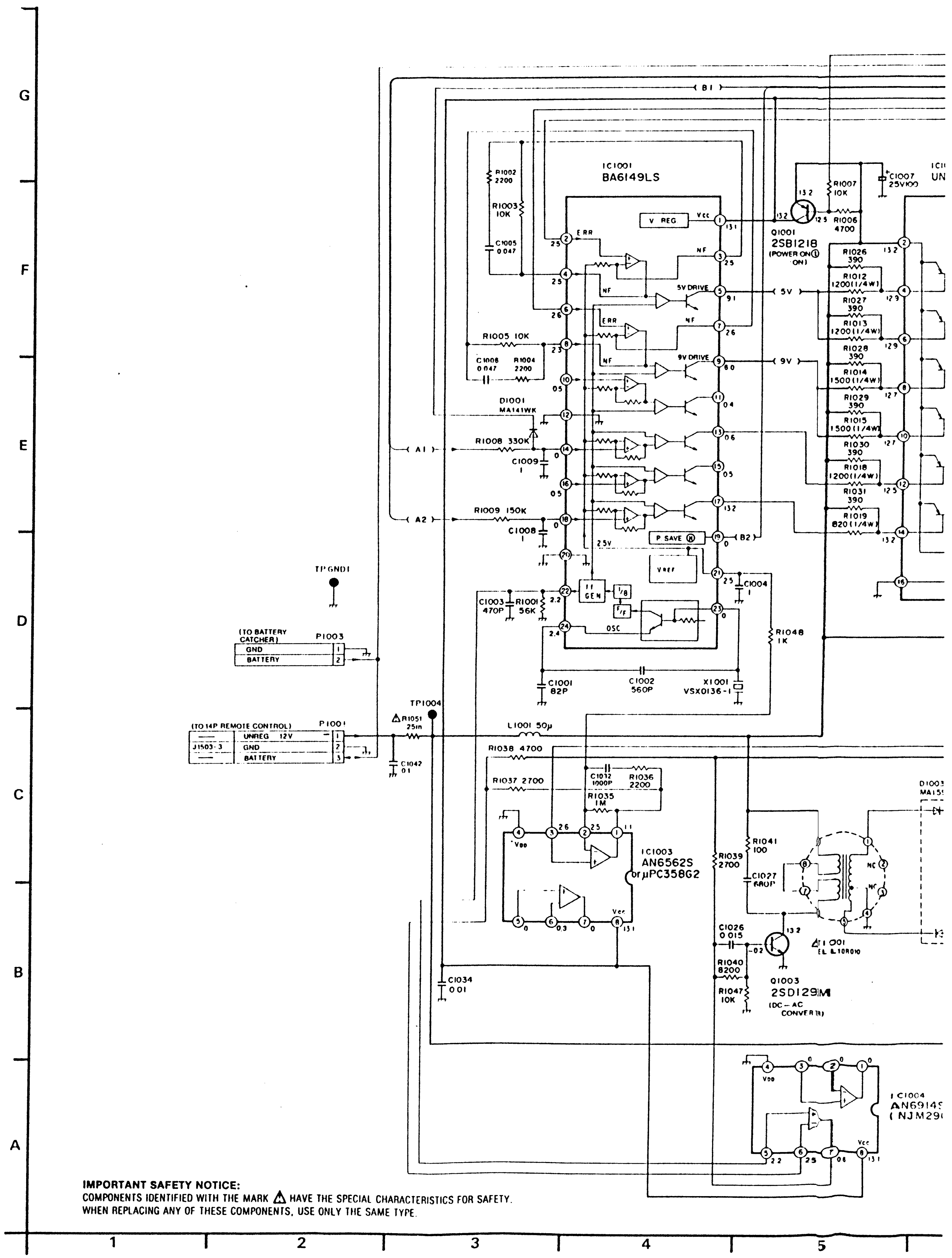
Test Point	
TP3001	C-6 Ⓕ
TP3001	C-22 Ⓒ
TP3002	D-5 Ⓕ
TP3002	D-23 Ⓒ
TP3003	A-6 Ⓕ
TP3003	A-22 Ⓒ
TP3004	A-6 Ⓕ
TP3004	A-22 Ⓒ
TP3005	B-4 Ⓕ
TP3005	B-24 Ⓒ
TP3007	B-5 Ⓕ
TP3007	B-23 Ⓒ
TP3008	C-3 Ⓕ
TP3008	C-25 Ⓒ
TP3010	E-4 Ⓕ
TP3010	E-24 Ⓒ
TP8001	F-4 Ⓕ
TP8001	F-24 Ⓒ
TP8002	E-2 Ⓕ
TP8002	E-26 Ⓒ
TP8003	D-2 Ⓕ
TP8003	D-25 Ⓒ
TP GND 1	A-1 Ⓕ
TP GND 1	A-27 Ⓒ
TP GND 3	D-3 Ⓕ
TP GND 3	D-25 Ⓒ

Adjustment	
VR3001	C-3 Ⓕ
VR3002	A-5 Ⓕ
VR3003	A-3 Ⓕ
VR3004	B-4 Ⓕ
VR3005	A-4 Ⓕ
VR3006	B-4 Ⓕ
VR3007	D-3 Ⓕ
VR3008	B-4 Ⓕ
VR3009	A-4 Ⓕ
VR3010	D-3 Ⓕ
VR3012	A-2 Ⓕ
VR5001	C-6 Ⓕ
VR8001	D-4 Ⓕ
VR8002	E-2 Ⓕ

Connector	
P1502	G-22
P3001	D-5 Ⓕ
P3001	D-23 Ⓒ
P3002	E-5 Ⓕ
P3002	E-23 Ⓒ
P3003	C-1 Ⓕ
P3003	C-27 Ⓒ
P3004	D-1 Ⓕ
P3004	D-27 Ⓒ
P3005	B-1 Ⓕ
P3005	B-27 Ⓒ
P3006	C-4 Ⓕ
P3006	C-24 Ⓒ
P3201	G-24 Ⓕ
P3201	G-26 Ⓒ
P5001	B-6 Ⓕ
P5001	B-22 Ⓒ
P8001	F-4 Ⓕ
P8001	F-23 Ⓒ
P8002	D-5 Ⓕ
P8002	D-23 Ⓒ

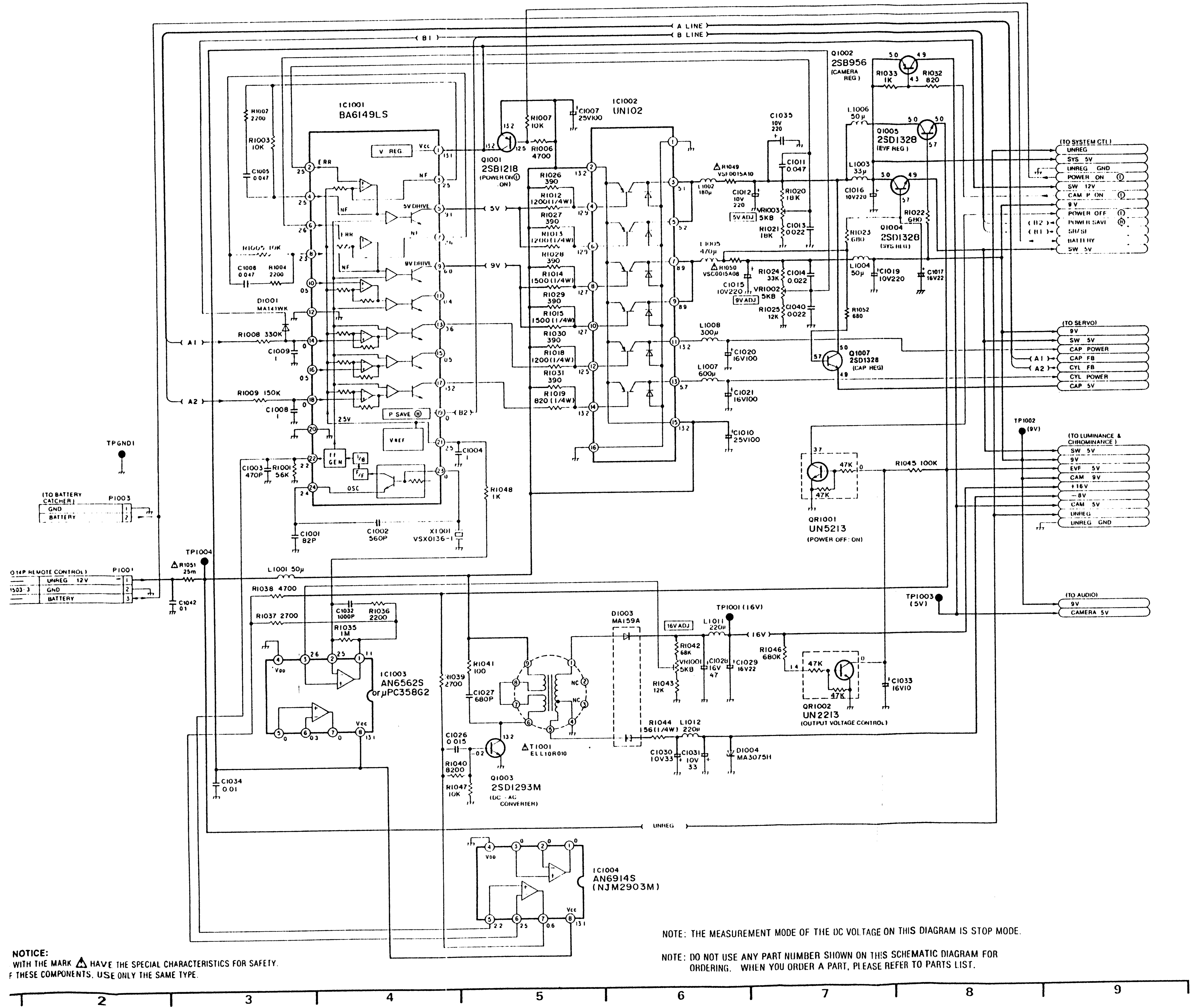
ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-15. POWER SUPPLY SCHEMATIC DIAGRAM


G
F
E
D
C
B
A
1
2
3
4
5
IC1001
BA6149LS
V REG
Vcc
ERR
NF
5V DRIVE
9V DRIVE
P SAVE Ⓗ
VREF
GEN
1/8
F/F
OSC
R1002 2200
R1003 10K
C1005 0.047
R1005 10K
C1006 0.047
R1004 2200
D1001 MA141WK
R1008 330K
C1009 1
R1009 150K
C1008 1
C1003 470P
R1001 56K
C1004 1
R1048 1K
C1001 82P
C1002 560P
X1001 VSX0136-1
Q1001 2SB1218 (POWER ON① ON)
R1007 10K
R1006 4700
C1007 25V100
B1
B2
A1
A2
5V
9V
R1026 390
R1012 1200(1/4W)
R1027 390
R1013 1200(1/4W)
R1028 390
R1014 1500(1/4W)
R1029 390
R1015 1500(1/4W)
R1030 390
R1018 1200(1/4W)
R1031 390
R1019 820(1/4W)
TP GND1
(TO BATTERY CATCHER)
P1003
GND
BATTERY
(TO 14P REMOTE CONTROL)
J1503-3
P1001
UNREG 12V
R1051 25m
TP1004
C1042 0.1
L1001 50μ
R1038 4700
R1037 2700
C1032 1000P
R1036 2200
R1035 1M
IC1003
AN6562S
or μPC358G2
Vdd
C1034 0.01
R1039 2700
R1041 100
C1027 680P
C1026 0.015
R1040 8200
R1047 10K
Q1003
2SD1291M
(DC-AC CONVERTER)
T1001
EL L10R010
D1003
NC
IC1004
AN6914S
(NJM29

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

JPPLY SCHEMATIC DIAGRAM

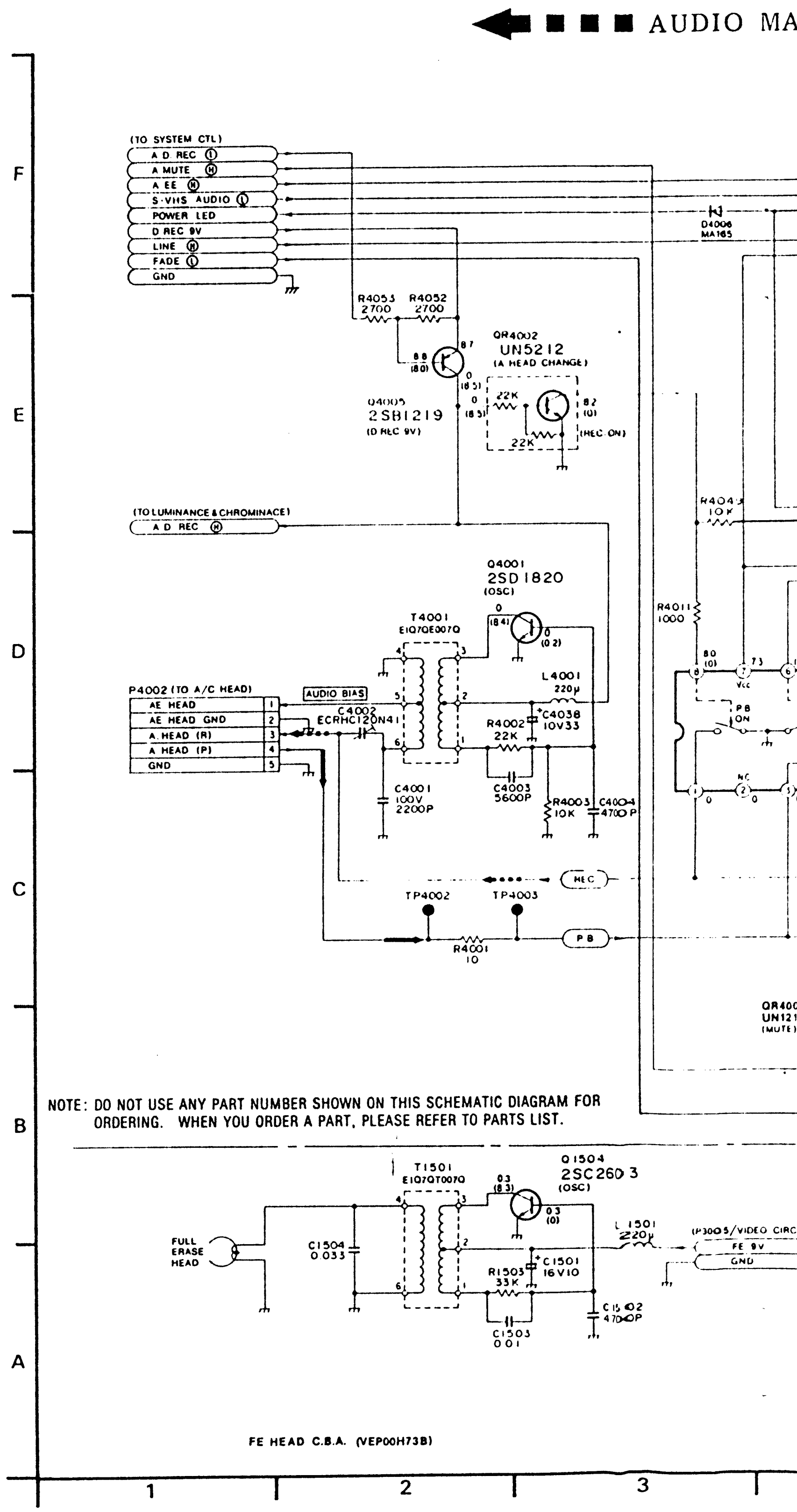

A LINE
B LINE
B1
IC1001
BA6149LS
IC1002
UN102
Q1001
2SB1218
(POWER ON ⓗ ON)
Q1002
2SB956
(CAMERA REG)
Q1005
2SD1328
(EVF REG)
Q1004
2SD1328
(SYS REG)
Q1007
2SD1328
(CAP REG)
QR1001
UN5213
(POWER OFF: ON)
QR1002
UN2213
(OUTPUT VOLTAGE CONTROL)
IC1003
AN6562S
or μPC358G2
IC1004
AN6914S
(NJM2903M)
Q1003
2SD1293M
(DC - AC CONVERTER)
T1001
ELL10R010
D1001
MA141WK
D1003
MA159A
D1004
MA3075H
X1001
VSX0136-1
V REG
5V DRIVE
9V DRIVE
P SAVE
VREF
OSC
F/I GEN
5V
9V
A1
A2
5V ADJ
9V ADJ
16V ADJ
TP1001 (16V)
TP1002 (9V)
TP1003 (5V)
TP1004
TPGND1
UNREG
(TO SYSTEM CTL)
UNREG
SYS 5V
UNREG GND
POWER ON
SW 12V
CAM P ON
9V
POWER OFF
POWER SAVE
SH/SI
BATTERY
SW 5V
(TO SERVO)
9V
SW 5V
CAP POWER
CAP FB
CYL FB
CYL POWER
CAP 5V
(TO LUMINANCE & CHROMINANCE)
SW 5V
9V
EVF 5V
CAM 9V
+16V
-8V
CAM 5V
UNREG
UNREG GND
(TO AUDIO)
9V
CAMERA 5V
(TO BATTERY CATCHER)
P1003
GND
BATTERY
(14P REMOTE CONTROL)
P1001
UNREG 12V
GND
BATTERY
2
3
4
5
6
7
8
9

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

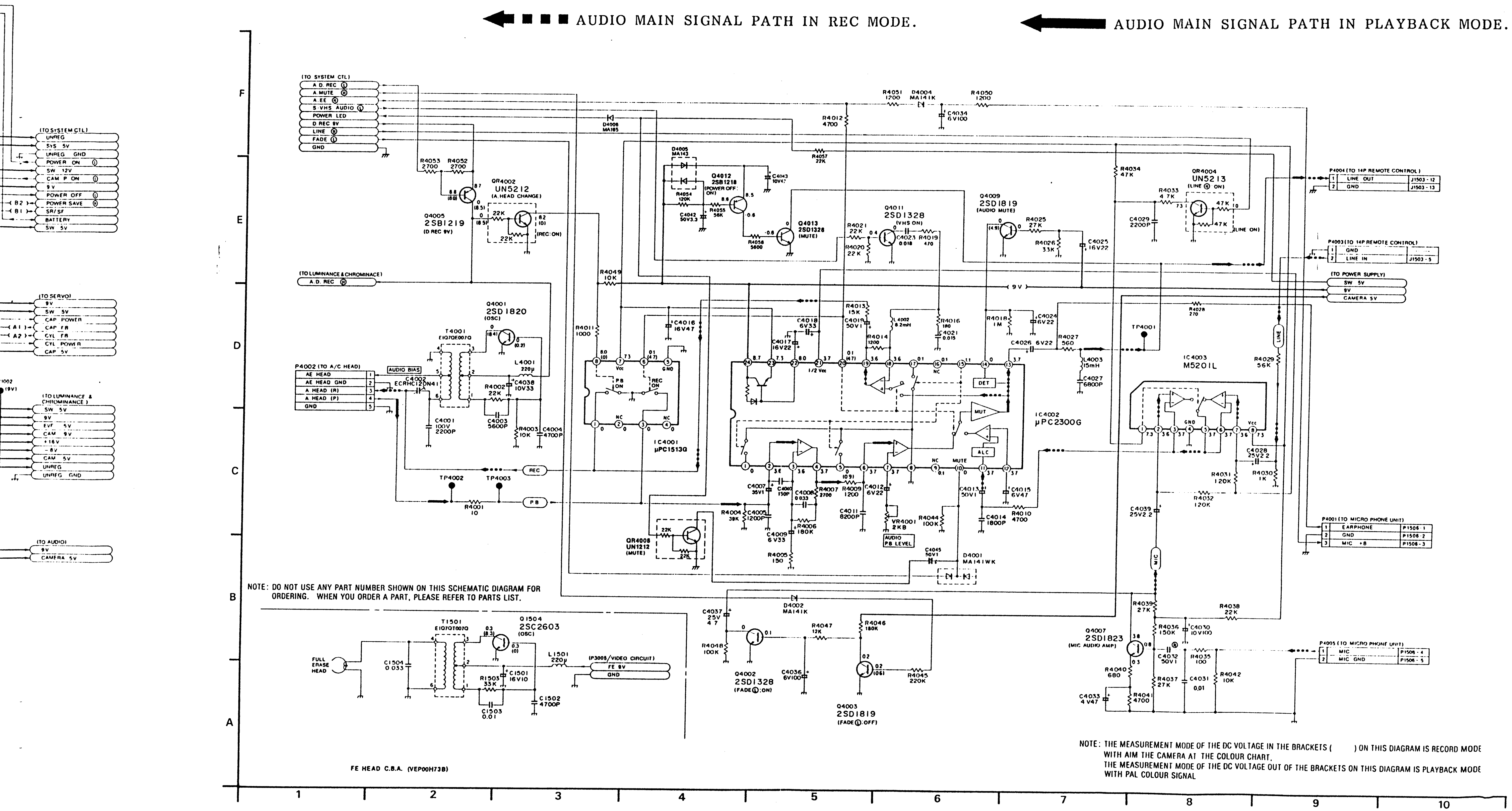
NOTICE:
WITH THE MARK △ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
F THESE COMPONENTS, USE ONLY THE SAME TYPE.

3-16. AUDIO SCHEMATIC DIAGRAM


AUDIO MA
F
E
D
C
B
A
(TO SYSTEM CTL)
A D REC ⓗ
A MUTE ⓗ
A EE ⓗ
S-VHS AUDIO ⓗ
POWER LED
D REC 9V
LINE ⓗ
FADE ⓗ
GND
QR4002
UN5212
(A HEAD CHANGE)
Q4005
2SB1219
(D REC 9V)
(TO LUMINANCE & CHROMINANCE)
A D REC ⓗ
Q4001
2SD1820
(OSC)
T4001
P4002 (TO A/C HEAD)
AE HEAD
AE HEAD GND
A HEAD (R)
A HEAD (P)
GND
AUDIO BIAS
TP4002
TP4003
REC
PB
Q1504
2SC2603
(OSC)
T1501
FULL ERASE HEAD
FE HEAD C.B.A. (VEP00H73B)
1
2
3

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-16. AUDIO SCHEMATIC DIAGRAM

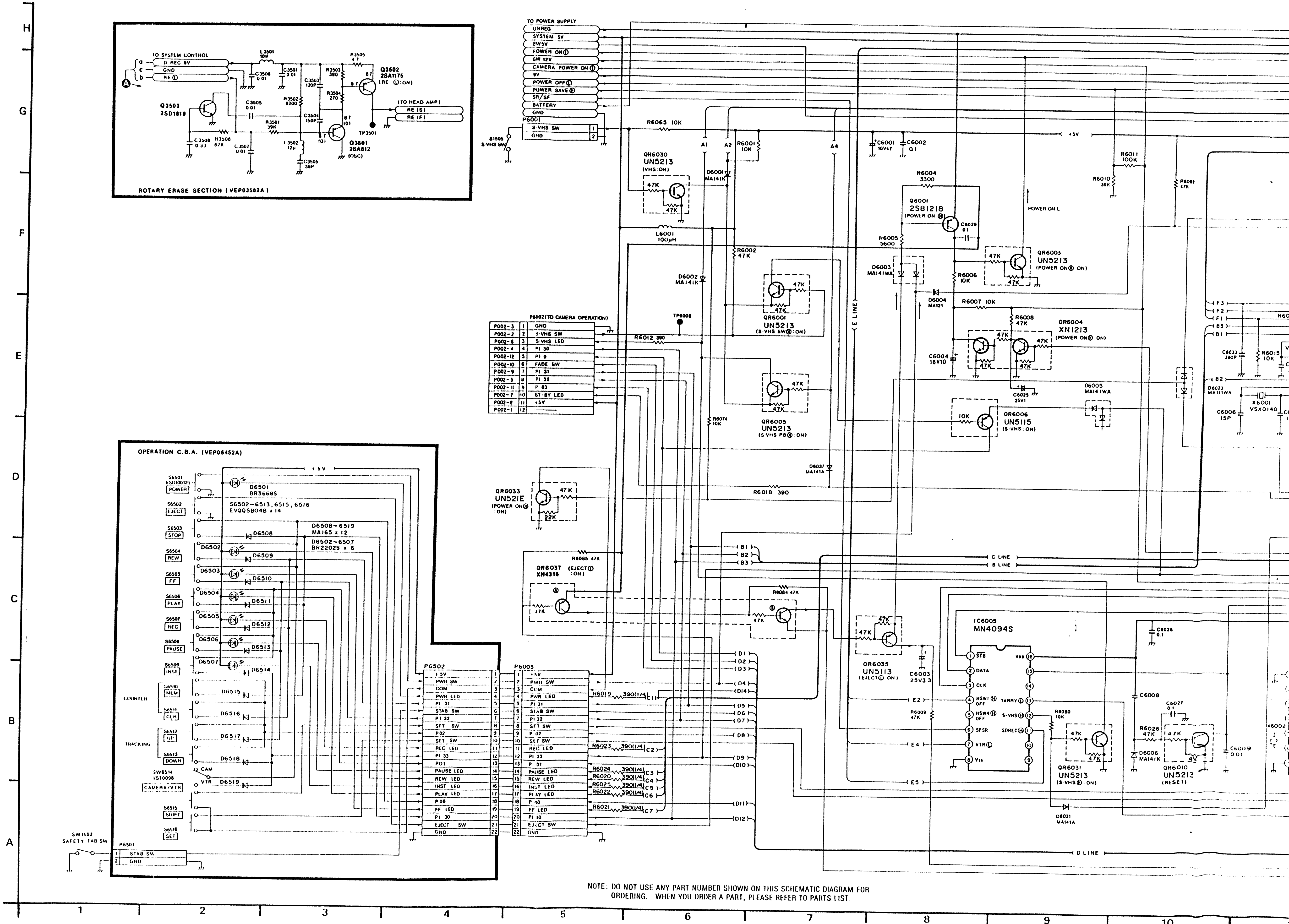

AUDIO MAIN SIGNAL PATH IN REC MODE.
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE.
(TO SYSTEM CTL)
A.D. REC
A MUTE
A.EE
S VHS AUDIO
POWER LED
D REC 9V
LINE
FADE
GND
QR4002 UN5212 (A.HEAD CHANGE)
Q4005 2SB1219 (D REC 9V)
Q4012 2SB1218 (POWER OFF: ON)
Q4013 2SD1328 (MUTE)
Q4011 2SD1328 (VHS ON)
Q4009 2SD1819 (AUDIO MUTE)
QR4004 UN5213 (LINE ON)
P4004 (TO 14P REMOTE CONTROL)
LINE OUT
P4003 (TO 14P REMOTE CONTROL)
LINE IN
(TO POWER SUPPLY)
SW 5V
9V
CAMERA 5V
(TO LUMINANCE & CHROMINANCE)
Q4001 2SD1820 (OSC)
T4001
P4002 (TO A/C HEAD)
AE HEAD
AE HEAD GND
A HEAD (R)
A HEAD (P)
AUDIO BIAS
IC4001 μPC1513G
IC4002 μPC2300G
IC4003 M5201L
TP4001
TP4002
TP4003
REC
PB
QR4008 UN1212 (MUTE)
VR4001 2KB
AUDIO PB LEVEL
D4001 MA141WK
P4001 (TO MICRO PHONE UNIT)
EARPHONE
MIC +8
Q4007 2SD1823 (MIC AUDIO AMP)
P4005 (TO MICRO PHONE UNIT)
MIC
MIC GND
T1501
Q1504 2SC2603 (OSC)
FULL ERASE HEAD
L1501 220μ
(P3005/VIDEO CIRCUIT)
FE 9V
FE HEAD C.B.A. (VEP00H73B)
Q4002 2SD1328 (FADE ①:ON)
Q4003 2SD1819 (FADE ①:OFF)
D4002 MA141K
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL

Next Page:
SYSTEM CONTROL Section

3-17. SYSTEM CONTROL & OPERATION SCHEMATIC DIAGRAM

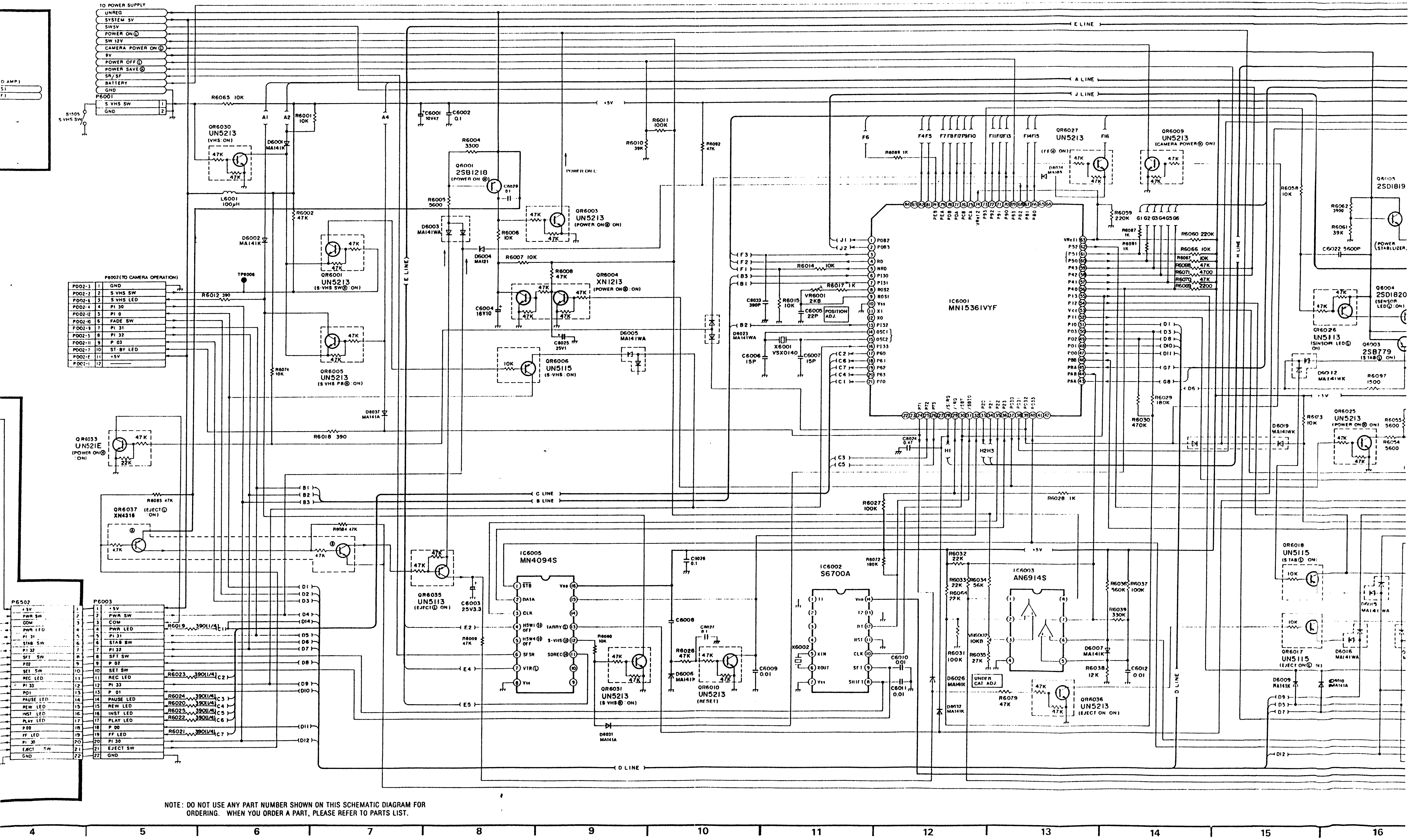


ROTARY ERASE SECTION (VEP03582A)
TO SYSTEM CONTROL
D REC 9V
GND
RE ①
Q3503 2SD1819
Q3502 2SA1175 (RE ①:ON)
Q3501 2SA812 (OSC)
TP3501
(TO HEAD AMP)
RE (S)
RE (F)
L3501 10μ
C3506 0.01
C3501 0.01
C3503 120P
R3503 390
R3504 270
R3505 4.7
C3505 0.01
R3502 8200
R3501 39K
C3504 150P
C3508 0.33
R3506 82K
C3502 0.01
L3502 12μ
C3505 39P
TO POWER SUPPLY
UNREG
SYSTEM 5V
SW5V
POWER ON①
SW 12V
CAMERA POWER ON ①
9V
POWER OFF①
POWER SAVE ⑧
SP/SF
BATTERY
GND
P6001
S-VHS SW
GND
S1505 S-VHS SW
R6065 10K
QR6030 UN5213 (VHS:ON)
D6001 MA141K
R6001 10K
C6001 10V47
C6002 0.1
+5V
R6011 100K
R6010 39K
R6092 47K
R6004 3300
Q6001 2SB1218 (POWER ON:⑧)
C6029 0.1
POWER ON L
L6001 100μH
R6002 47K
R6005 5600
D6003 MA141WA
QR6003 UN5213 (POWER ON⑧:ON)
D6002 MA141K
QR6001 UN5213 (S-VHS SW①:ON)
R6006 10K
D6004 MA121
R6007 10K
R6008 47K
QR6004 XN1213 (POWER ON⑧:ON)
E LINE
P6002 (TO CAMERA OPERATION)
TP6008
R6012 390
C6004 16V10
C6025 25V1
D6005 MA141WA
QR6005 UN5213 (S-VHS PB⑧:ON)
R6074 10K
QR6006 UN5115 (S-VHS:ON)
D6037 MA141A
R6018 390
QR6033 UN521E (POWER ON⑧:ON)
22K
R6085 47K
QR6037 XN4316 (EJECT①:ON)
C LINE
B LINE
R6084 47K
QR6035 UN5113 (EJECT① ON)
C6003 25V3.3
IC6005 MN4094S
STB
DATA
CLK
HSW1 ⓗ OFF
HSW4 ⓗ OFF
SFSR
VTR①
Vss
VDD
TARRY①
S-VHS①
SDREC①
R6009 47K
R8080 10K
QR6031 UN5213 (S-VHS⑧:ON)
D6031 MA141A
C6026 0.1
C6008
C6027 0.1
R6026 47K
D6006 MA141K
QR6010 UN5213 (RESET)
C6009 0.01
X6001 VSX0140
C6006 15P
C6033 390P
R6015 10K
D6073 MA141WA
D LINE
OPERATION C.B.A. (VEP06452A)
S6501 ESJ100121 POWER
S6502 EJECT
S6503 STOP
S6504 REW
S6505 FF
S6506 PLAY
S6507 REC
S6508 PAUSE
S6509 INST
COUNTER
S6510 MLM
S6511 CLR
TRACKING
S6512 UP
S6513 DOWN
SW6514 VSS6098 CAMERA/VTR
CAM
VTR
S6515 SHIFT
S6516 SET
D6501 BR3668S
S6502~6513, 6515, 6516 EVQQSB04B x 14
D6508~6519 MA165 x 12
D6502~6507 BR2202S x 6
SW1502 SAFETY TAB SW
P6501
STAB SW
GND
P6502
P6003
+5V
PWR SW
COM
PWR LED
PI 31
STAB SW
PI 32
SFT SW
P02
SET SW
REC LED
PI 33
P01
PAUSE LED
REW LED
INST LED
PLAY LED
P00
FF LED
PI 30
EJECT SW
GND
R6019 390(1/4)
R6023 390(1/4)
R6024 390(1/4)
R6020 390(1/4)
R6025 390(1/4)
R6022 390(1/4)
R6021 390(1/4)

P002-3	1	GND
P002-2	2	S-VHS SW
P002-6	3	S-VHS LED
P002-4	4	PI 30
P002-12	5	PI 0
P002-10	6	FADE SW
P002-9	7	PI 31
P002-5	8	PI 32
P002-11	9	P 03
P002-7	10	ST-BY LED
P002-E	11	+5V
P002-1	12	

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

HEMATIC DIAGRAM


TO POWER SUPPLY
UNREG
SYSTEM 5V
SW5V
POWER ON ①
SW 12V
CAMERA POWER ON ①
9V
POWER OFF ①
POWER SAVE ⓗ
SR/SF
BATTERY
GND
P6001
S VHS SW
GND
S1505 S VHS SW
E LINE
A LINE
J LINE
C LINE
B LINE
D LINE
+5V
R6065 10K
QR6030 UN5213 (VHS:ON)
D6001 MA141K
R6001 10K
C6001 10V47
C6002 0.1
R6004 3300
Q6001 2SB1218 (POWER ON ⓗ)
C6079 0.1
R6005 5600
D6003 MA141WA
QR6003 UN5213 (POWER ON ⓗ ON)
R6011 100K
R6010 39K
R6092 47K
L6001 100μH
R6002 47K
D6002 MA141K
QR6001 UN5213 (S-VHS SW ⓗ :ON)
D6004 MA121
R6006 10K
R6007 10K
R6008 47K
QR6004 XN1213 (POWER ON ⓗ :ON)
C6004 16V10
C6025 25V1
P6002 (TO CAMERA OPERATION)
TP6006
R6012 390
QR6005 UN5213 (S VHS PB ⓗ :ON)
R6074 10K
QR6006 UN5115 (S-VHS:ON)
D6005 MA141WA
D6037 MA141A
QR6033 UN521E (POWER ON ⓗ :ON)
R6018 390
R6085 47K
QR6037 XN4316 (EJECT ① :ON)
R6084 47K
QR6035 UN5113 (EJECT ① ON)
C6003 25V3.3
IC6005 MN4094S
R6009 47K
R6080 10K
QR6031 UN5213 (S VHS ⓗ :ON)
D6031 MA141A
C6026 0.1
C6008
C6027 0.1
R6026 47K
D6006 MA141K
QR6010 UN5213 (RESET)
C6009 0.01
IC6002 S6700A
X6002
C6010 0.01
C6011 0.01
P6502
P6003
R6019 390(1/4)
R6023 390(1/4)
R6024 390(1/4)
R6020 390(1/4)
R6025 390(1/4)
R6022 390(1/4)
R6021 390(1/4)
IC6001 MN15361VYF
X6001 VSX0140
C6006 15P
C6007 15P
C6033 390P
R6015 10K
VR6001 2KB
C6005 22P
POSITION ADJ.
R6014 10K
R6017 1K
D6023 MA141WA
R6089 1K
QR6027 UN5213 (FE ⓗ ON)
D6034 MA165
QR6009 UN5213 (CAMERA POWER ⓗ ON)
R6059 220K
R6060 220K
R6066 10K
R6087 1K
R6091 1K
R6029 180K
R6030 470K
C6024 0.47
R6027 100K
R6028 1K
R6072 180K
R6032 22K
R6033 22K
R6034 56K
R6064 27K
R6031 100K
VR6002 10KB
R6035 27K
D6026 MA141K
D6032 MA141K
UNDER CAT ADJ
R6079 47K
IC6003 AN6914S
R6036 560K
R6037 100K
R6039 330K
D6007 MA141K
R6038 12K
C6012 0.01
QR6036 UN5213 (EJECT ON ON)
R6058 10K
Q6005 2SD1819
R6062 3900
R6061 39K
C6022 5600P
Q6004 2SD1820
QR6026 UN5113 (SINSOR LED ① ON)
Q6003 2SB779 (S TAB ① ON)
D6012 MA141WK
R6097 1500
R6073 10K
D6019 MA141WK
QR6025 UN5213 (POWER ON ⓗ ON)
R6055 5600
R6054 5600
QR6018 UN5115 (S TAB ① ON)
QR6017 UN5115 (EJECT ON ① ON)
D6016 MA141WA
D6009 MA141K
4
5
6
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11
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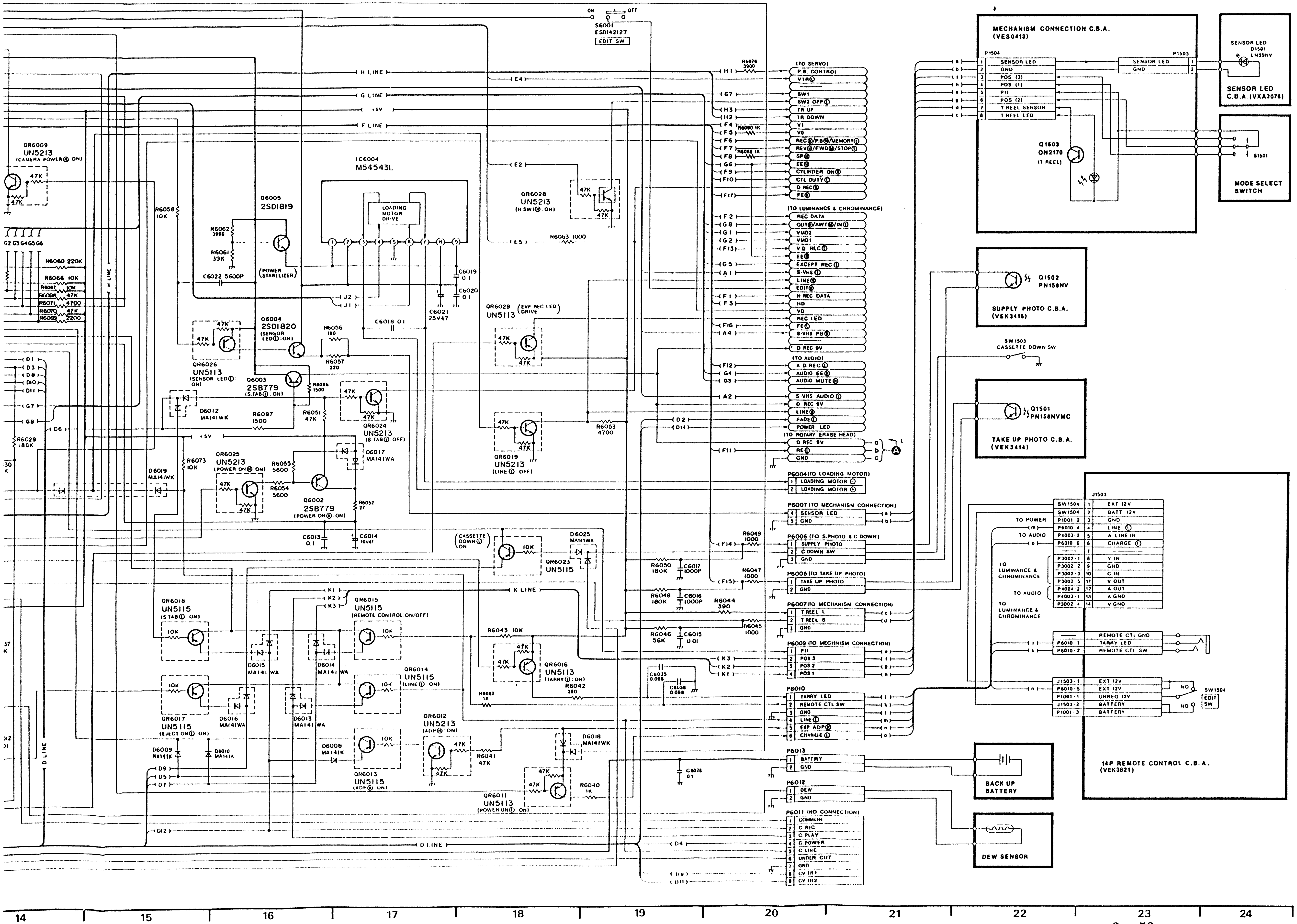
16

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


S6001 ESD142127 EDIT SW
ON
OFF
H LINE
G LINE
+5V
F LINE
D LINE
K LINE
QR6009 UN5213 (CAMERA POWER ON)
IC6004 M54543L
LOADING MOTOR DRIVE
Q6005 2SD1819 (POWER STABLIZER)
Q6004 2SD1820 (SENSOR LED ON)
Q6003 2SB779 (S TAB ON)
Q6002 2SB779 (POWER ON ON)
QR6026 UN5113 (SENSOR LED ON)
QR6024 UN5213 (S TAB OFF)
QR6025 UN5213 (POWER ON ON)
QR6028 UN5213 (H SW1 ON)
QR6029 UN5113 (EVF REC LED DRIVE)
QR6019 UN5213 (LINE OFF)
QR6023 UN5115 (CASSETTE DOWN ON)
QR6018 UN5115 (S TAB ON)
QR6017 UN5115 (EJECT ON ON)
QR6015 UN5115 (REMOTE CONTROL ON/OFF)
QR6014 UN5115 (LINE ON)
QR6013 UN5115 (ADP ON)
QR6012 UN5213 (ADP ON)
QR6016 UN5113 (TARRY ON)
QR6011 UN5113 (POWER ON ON)
D6012 MA141WK
D6017 MA141WA
D6019 MA141WK
D6025 MA141WA
D6015 MA141WA
D6014 MA141WA
D6016 MA141WA
D6013 MA141WA
D6009 MA141K
D6010 MA141A
D6008 MA141K
D6018 MA141WK
(TO SERVO)
P.B. CONTROL
VTR
SW1
SW2 OFF
TR UP
TR DOWN
V1
V0
REC/PB/MEMORY
REV/FWD/STOP
SP
EE
CYLINDER ON
CTL DUTY
D REC
FE
(TO LUMINANCE & CHROMINANCE)
REC DATA
OUT/AWT/IN
VMD2
VMD1
V.D. RLC
EE
EXCEPT REC
S-VHS
LINE
EDIT
N REC DATA
HD
VD
REC LED
FE
S-VHS PB
D REC 9V
(TO AUDIO)
A.D. REC
AUDIO EE
AUDIO MUTE
S-VHS AUDIO
D REC 9V
LINE
FADE
POWER LED
(TO ROTARY ERASE HEAD)
D REC 9V
RE
GND
P6004 (TO LOADING MOTOR)
LOADING MOTOR ⊖
LOADING MOTOR ⊕
P6007 (TO MECHANISM CONNECTION)
SENSOR LED
GND
P6006 (TO S.PHOTO & C.DOWN)
SUPPLY PHOTO
C.DOWN SW
GND
P6005 (TO TAKE UP PHOTO)
TAKE UP PHOTO
GND
P6007 (TO MECHANISM CONNECTION)
T.REEL L
T.REEL S
GND
P6009 (TO MECHNISM CONNECTION)
P11
POS 3
POS 2
POS 1
P6010
TARRY LED
REMOTE CTL SW
GND
LINE
EXP ADP
CHARGE
P6013
BATTRY
GND
P6012
DEW
GND
P6011 (NO CONNECTION)
COMMON
C.REC
C.PLAY
C.POWER
C.LINE
UNDER CUT
GND
CV IR1
CV IR2
MECHANISM CONNECTION C.B.A. (VES0413)
P1504
P1503
SENSOR LED
GND
POS (3)
POS (1)
P11
POS (2)
T.REEL SENSOR
T.REEL LED
Q1503 ON2170 (T.REEL)
SENSOR LED D1501 LN59NV
SENSOR LED C.B.A. (VXA3076)
S1501
MODE SELECT SWITCH
Q1502 PN158NV
SUPPLY PHOTO C.B.A. (VEK3415)
SW1503 CASSETTE DOWN SW
Q1501 PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
J1503
EXT 12V
BATT 12V
GND
LINE
A.LINE IN
CHARGE
Y IN
GND
C IN
V OUT
A OUT
A GND
V GND
TO POWER
TO AUDIO
TO LUMINANCE & CHROMINANCE
TO AUDIO
TO LUMINANCE & CHROMINANCE
REMOTE CTL GND
TARRY LED
REMOTE CTL SW
EXT 12V
EXT 12V
UNREG 12V
BATTERY
BATTERY
SW1504 EDIT SW
NO
14P REMOTE CONTROL C.B.A. (VEK3621)
BACK UP BATTERY
DEW SENSOR
14
15
16
17
18
19
20
21
22
23
24

SYSTEM CONTROL ICs VOLTAGE CHART

REF. NO.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	1.2	0	0	4.8	4.8	4.9	4.9	0	1.1	0	4.9	2.5	2.0	4.8	4.1	4.1	4.1	3.8
PLAY	0	0	4.0	0	0	4.1	4.2	3.0	2.9	0	0.8	0	4.9	2.5	2.0	4.2	3.9	0.4	4.0	3.8
REC	0	0	0.6	0	0	4.7	4.8	4.9	4.9	0	1.0	0	4.9	2.5	2.0	4.7	0.4	0.4	3.7	3.7
F.F	0	0	4.0	0	0	4.3	4.8	3.0	2.9	0	0.6	0	4.4	2.5	2.7	4.2	3.8	3.8	0.4	3.8
REW	0	0	4.0	0	0	4.3	4.8	3.0	2.9	0	0.7	0	4.4	2.4	2.1	4.2	0	3.8	3.8	0.4

REF. NO.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0.3	0	0	4.1	3.8	4.1	3.8	4.9	4.9	4.7	4.9	4.9	0	0	0.1	0	4.9	0	4.9	4.7
PLAY	0.4	0	0	3.8	3.8	3.8	3.3	4.6	4.6	4.7	4.9	4.9	0	0	0.1	0	4.9	0	0.1	4.7
REC	0.4	0	0	3.7	3.7	3.9	3.8	—	4.9	4.7	4.9	4.9	0.1	0.1	0.1	0.1	4.9	0.1	4.9	4.9
F.F	0.4	0	0	3.7	3.8	3.8	3.3	4.9	4.6	4.7	4.9	4.9	0	0	0.1	0.1	4.8	0	4.9	4.7
REW	0.4	0	0	3.8	3.8	3.8	3.3	4.0	4.6	4.7	4.9	4.9	0	0	0.1	0.1	4.8	0	4.8	4.7

REF. NO.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	2.2	4.7	0	4.5	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.9	4.8	4.8	4.9	0	4.9	0
PLAY	0	0	0	4.7	0.1	4.5	4.6	4.6	4.6	4.6	4.3	4.3	4.9	4.2	4.7	0	0	0.2	0	0.1
REC	0	0	2.2	4.7	0	4.5	4.9	4.9	4.9	4.9	4.9	4.8	4.9	4.8	4.7	4.8	4.9	4.9	0	0.1
F.F	0	0	2.2	4.7	0	4.5	4.6	4.6	4.6	4.7	4.3	4.3	4.9	4.2	4.7	4.8	4.9	4.9	0	0.1
REW	0	0	2.2	4.7	0	4.5	4.5	4.6	4.6	4.7	4.3	4.3	4.9	4.2	4.7	4.8	4.9	4.9	4.9	0.1

REF. NO.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	4.9	2.5	0	0	4.9	4.9	—	3.7	3.5	3.3	2.2	8.6	2.5	0	0	0	4.9	0	4.9
PLAY	0.1	4.9	2.5	0	0	4.8	4.9	—	3.7	8.7	8.7	5.6	8.6	2.5	0	4.9	0	0	2.5	2.5
REC	0.1	0	2.4	−0.1	−0.1	4.8	4.9	—	3.7	0.3	0.3	5.5	8.6	2.4	0	4.9	4.9	4.9	2.5	4.9
F.F	0.1	4.9	2.4	0	0	4.8	4.9	—	3.7	8.6	8.7	0	5.4	0	0	0	0	2.5	2.5	4.9
REW	0.1	4.9	2.4	0	0	0	4.8	—	3.7	8.6	8.6	5.6	5.4	2.4	0	0	0	2.5	4.9	4.9

REF. NO.	IC6001																			
MODE	81	82	83	84																
STOP	4.9	0	0	0																
PLAY	4.9	0	0	0																
REC	4.9	0	0	0																
F.F	4.9	4.9	0	0																
REW	4.9	4.9	0	0																

REF. NO.	IC6002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14						
STOP	0	0.5	0	0	−0.1	0.2	0	0	0	4.8	0	4.9	0	0						
PLAY	0	0.5	0	0	−0.1	0.1	0	0	0	4.7	0	4.9	0	0						
REC	0	0.6	0	0	−0.1	0.1	0	0	0	4.7	0	4.9	0	0						
F.F	0	0.7	0	0	−0.1	0	0	0	0	4.7	0	4.9	0	0						
REW	0	0.6	0	0	−0.1	0.1	0	0	0	4.7	0	4.9	0	0						

REF. NO.	IC6003										IC6004									
MODE	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8	9	
STOP	4.6	4.1	4.5	0	0.6	0	4.7	13.1			6.7	13.2	0.8	0	0	0	0.8	13.2	6.7	
PLAY	4.7	4.1	4.4	0	0.6	0	4.7	13.0			6.8	13.1	1.0	0	0	0	0.9	13.1	6.8	
REC	4.6	4.1	4.4	0	0.6	0	4.6	12.9			6.7	13.1	0.8	0	0	0	0.4	13.1	6.7	
F.F	4.7	4.1	4.4	0	0.6	0	4.7	12.9			6.8	13.1	1.0	0	0	0	0.9	13.1	6.8	
REW	4.7	4.1	4.4	0	0.6	0	4.7	12.9			6.8	13.1	0.8	0	0	0	0.9	13.1	6.8	

REF. NO.	IC6005																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	4.7	0.1	0.1	0	0	4.9	4.9	0	0.1	0.1	0	0	4.6	4.9	4.9	4.9				
PLAY	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	4.9	0	4.9	5.0				
REC	4.9	0.1	0.1	0	0	4.9	0	0	4.8	4.8	4.9	0	0	4.9	4.9	4.9				
F.F	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	5.0	5.0	4.9	5.0				
REW	4.7	0.1	0.1	0	0	5.0	5.0	0	0.1	0.1	0	0	4.6	0	0	4.9				

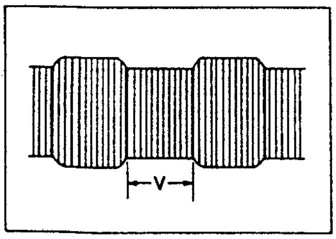
SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005					
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B			
STOP	13.1	8.7	13.1	5.0	4.9	4.3	8.8	8.8	8.0	−0.9	13.2	−0.6	6.9	8.8	7.3			
PLAY	13.4	8.9	13.4	5.0	4.9	4.3	8.8	8.8	8.0	−0.9	13.1	−0.5	6.8	8.8	7.3			
REC	13.0	8.6	13.0	0	0	4.8	8.7	8.7	8.0	−0.9	13.1	−0.5	6.9	8.8	7.3			
F.F	13.1	8.7	13.1	4.9	4.9	4.3	8.8	8.8	8.1	3.4	13.0	3.6	6.9	8.8	7.3			
REW	13.0	8.6	13.0	5.0	4.9	4.3	8.8	8.8	8.1	3.5	13.0	4.0	6.9	8.8	7.3			

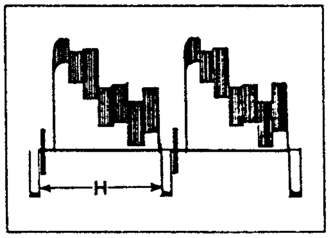
REF. NO.	QR6001			QR6003			QR6004 Ⓐ			QR6004 Ⓑ			QR6005			QR6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	3.2	3.9	4.2	0	0	8.7	0	10.9	0	0	0	4.9	3.2	4.9	0	4.9	4.9	4.0
PLAY	3.2	3.9	4.3	0	0	8.9	0	10.9	0	0	0	4.9	3.2	4.8	0.4	4.6	4.3	3.9
REC	3.1	3.9	4.2	0	0	8.6	0	10.8	0	0	0	4.8	3.1	4.9	0	4.9	4.9	4.0
F.F	3.2	3.9	4.2	0	0	8.7	0	10.8	0	0	0	4.9	3.2	4.9	0	4.6	4.3	3.9
REW	3.2	3.9	4.2	0	0	8.7	0	10.8	0	0	0	4.9	3.2	4.8	0	4.6	4.3	3.9

REF. NO.	QR6009			QR6010			QR6011			QR6012			QR6013			QR6014		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0.1	4.9	0	4.9	0	12.6	12.6	0	0	0	6.2	4.7	0	4.7	4.6	4.8	4.8
PLAY	0	5.0	0	0	4.9	0	12.5	12.5	0	0	0	6.2	4.7	4.7	0	4.8	4.8	4.2
REC	0	0.1	4.9	0	4.9	0	12.5	12.5	0	0	0	6.1	4.7	4.7	0	4.6	4.7	4.8
F.F	0	0.1	4.8	0	4.9	0	12.5	12.4	0	0	0	6.1	4.7	4.7	0	4.6	4.8	4.8
REW	0	0.1	4.9	0	4.9	0	12.5	12.4	0	0	0	6.1	4.7	4.7	0	4.5	4.7	4.8
REF. NO.	QR6015			QR6016			QR6017			QR6018			QR6019			QR6023		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	4.6	4.9	4.9	5.0	0	4.9	4.5	4.2	4.4	4.6	4.9	4.5	0	0	4.4	4.4	4.3	0.5
PLAY	4.6	4.2	4.9	5.0	0	4.9	4.6	4.2	4.5	4.3	4.2	0.5	0	0	4.4	4.3	4.3	0.5
REC	4.6	4.8	4.9	4.9	4.9	0.1	4.4	4.2	4.3	4.8	4.8	0.5	0	0	4.4	4.3	4.3	0.5
F.F	4.5	4.2	4.9	4.9	0	4.9	4.5	4.2	4.4	4.3	4.2	0.5	0	0	4.4	4.4	4.3	0.4
REW	4.6	4.2	4.9	5.0	0	4.9	4.6	4.2	4.5	4.3	4.2	0.5	0	0	4.4	4.3	4.3	0.5
REF. NO.	QR6024			QR6025			QR6026			QR6027			QR6028			QR6029		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	0.4	0	0	4.9	8.7	−0.5	8.6	0	3.2	0	0	4.6	0	5.0	0	5.0
PLAY	0	0	0.4	0	0	4.9	8.7	−0.6	8.6	0	8.6	0	0	0.1	0	4.9	−0.1	4.9
REC	0	5.0	4.4	0	0	4.8	8.7	−0.5	8.6	0.9	0.9	0	0	0.4	0	5.0	4.9	0
F.F	0	0	0.4	0	0	4.9	8.7	3.9	6.0	0	8.6	0	0	0	0	4.9	−0.3	4.6
REW	0	0	0.4	0	0	4.9	8.7	3.7	6.0	0	8.6	0	0	0	0	4.9	−0.3	4.6
REF. NO.	QR6030			QR6031			QR6033			QR6035			QR6036			QR6037 Ⓐ		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	3.2	0	4.7	4.2	4.7	0	0	4.1	12.8	0	12.7	0	4.0	0	13.2	−1.3	13.1
PLAY	0	3.2	0	0	4.8	0	0	1.2	0.7	12.8	0	12.7	0	3.9	0	13.1	−1.1	13.1
REC	0	3.2	0	0	4.9	0	0	1.2	0.9	12.7	0	12.6	0	3.9	0	13.1	−1.2	13.0
F.F	0	3.2	0	0	4.9	0	0	0	4.1	12.7	0	12.6	0	3.9	0	13.1	−1.2	13.0
REW	0	3.1	0	0	4.9	0	0	0	4.1	12.7	0	12.6	0	4.0	0	13.1	−1.3	13.0
REF. NO.	QR6037 Ⓑ																	
MODE	E	C	B															
STOP	−0.7	12.7	−0.7															
PLAY	−1.3	12.7	−1.3															
REC	−1.2	12.6	−1.3															
F.F	−1.2	12.6	−1.1															
REW	−1.4	12.6	−1.3															

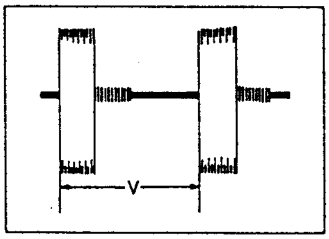
LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 3000 Series)



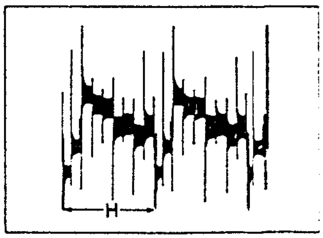
TP3001 PLAY
0.1 V/5 msec. div. 0.17 Vp-p



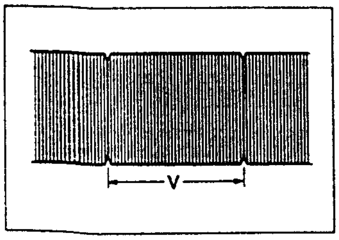
TP3002 REC/PLAY
0.5 V/20μsec. div. 2.0 Vp-p



TP3003 REC
50 mV/20 msec. div. 0.2 Vp-p

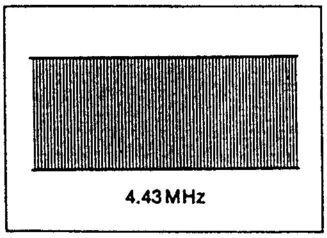


TP3005 REC
0.1 V/20μsec. div. 0.65 Vp-p

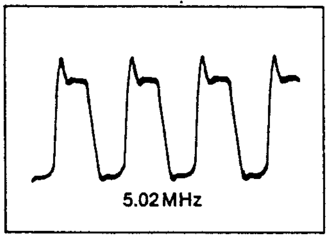


TP3007 REC
0.1 V/5 msec. div. 0.6 Vp-p

LUMINANCE & CHROMINANCE CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 8000 Series)

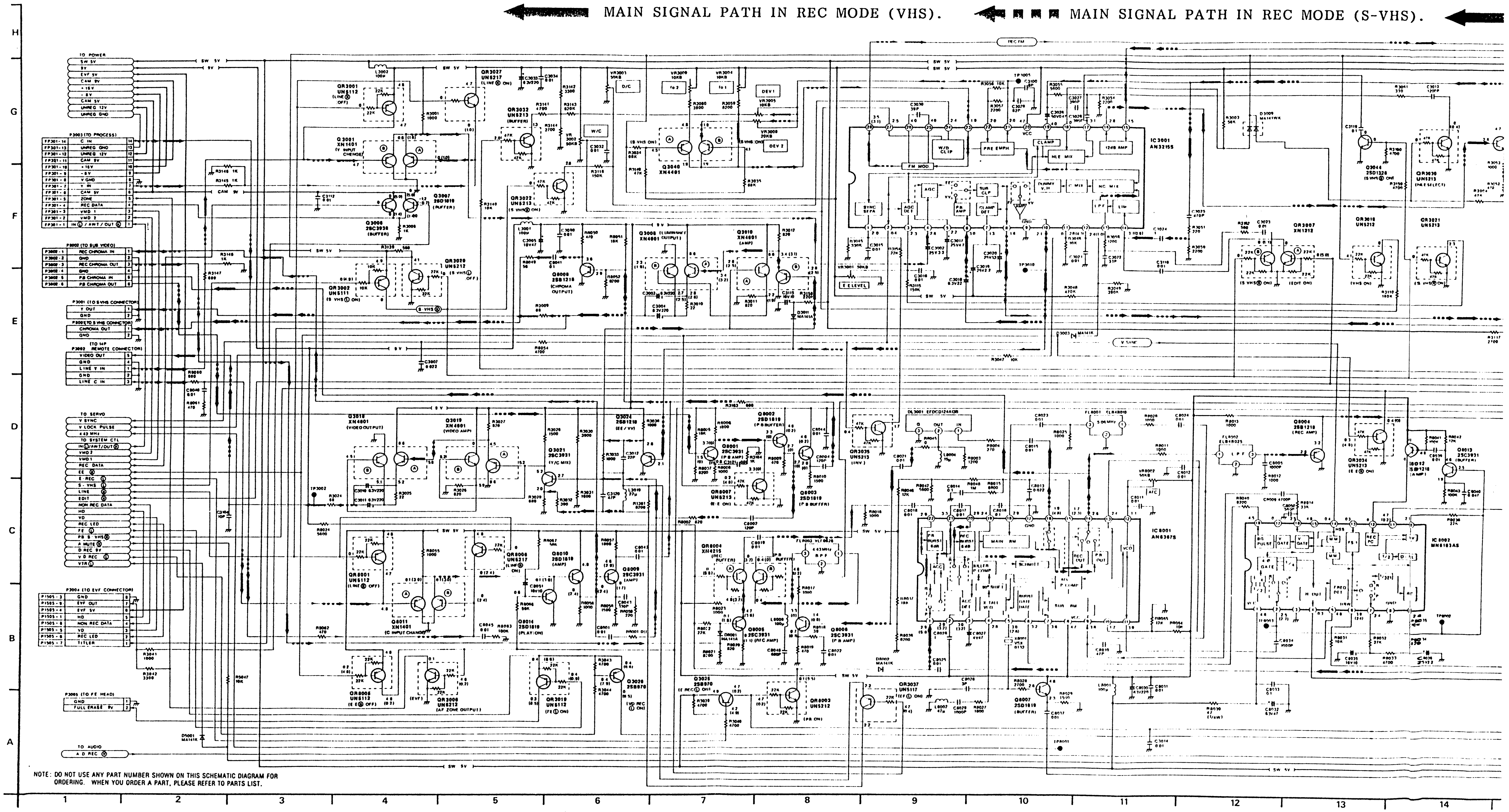


TP8001 REC/PLAY
0.1 V/10μsec. div. 0.27 Vp-p



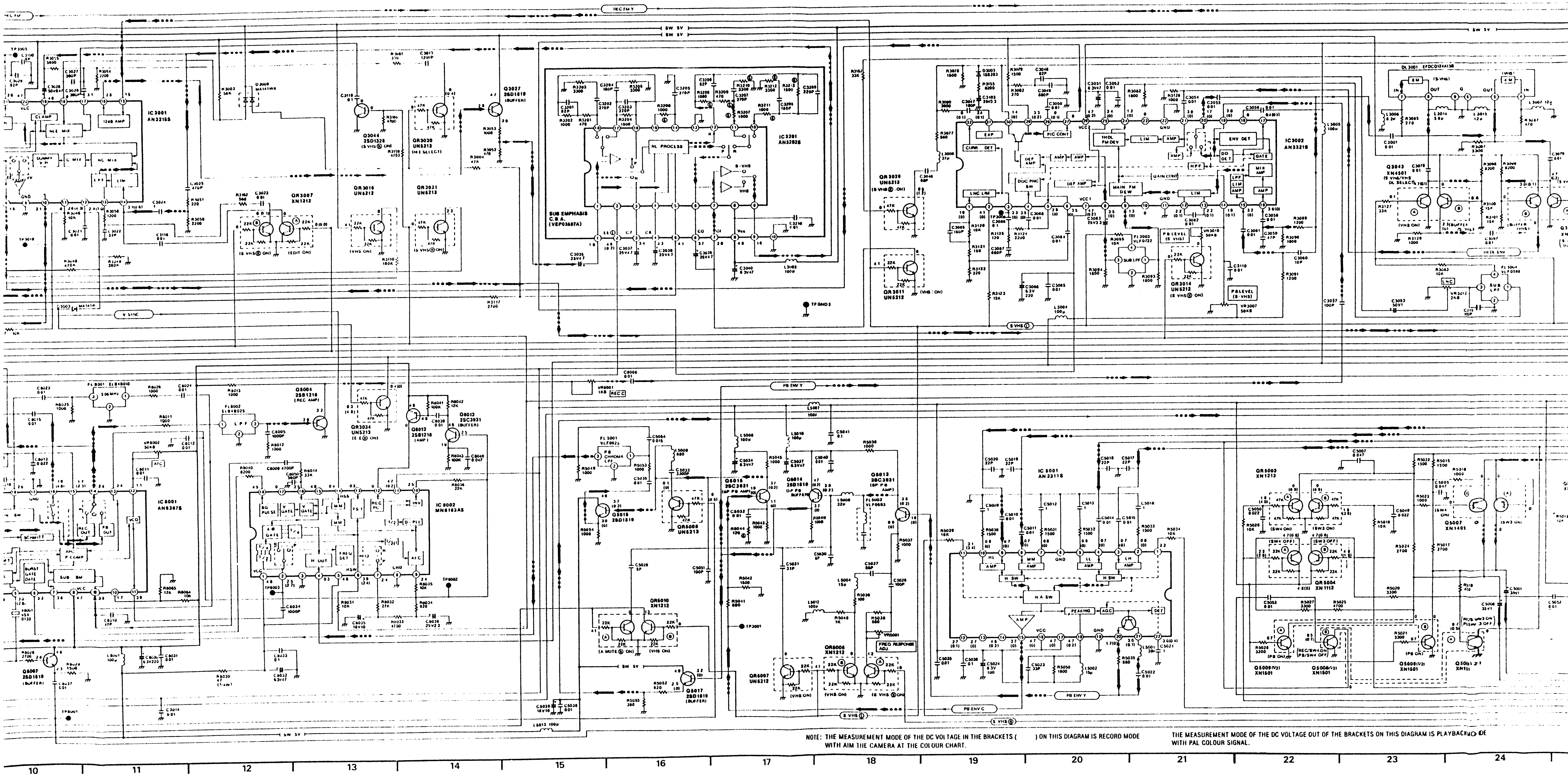
TP8003 REC/PLAY
0.2 V/1.0μsec. div. 0.8 Vp-p

3-18. LUMINANCE, CHROMINANCE & HEAD AMP SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE (VHS).
MAIN SIGNAL PATH IN REC MODE (S-VHS).
H
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
IC3001 AN3215S
IC8001 AN6367S
IC8002 MN8163AS
TO POWER
TO SERVO
TO AUDIO
TO FE HEAD
P3004 (TO EVF CONNECTOR)
P3003 (TO PROCESS)
P8002 (TO SUB VIDEO)
P3001 (TO S-VHS CONNECTOR)
P3002 REMOTE CONNECTOR
DL3001 EFDCD124A03B
SW 5V

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

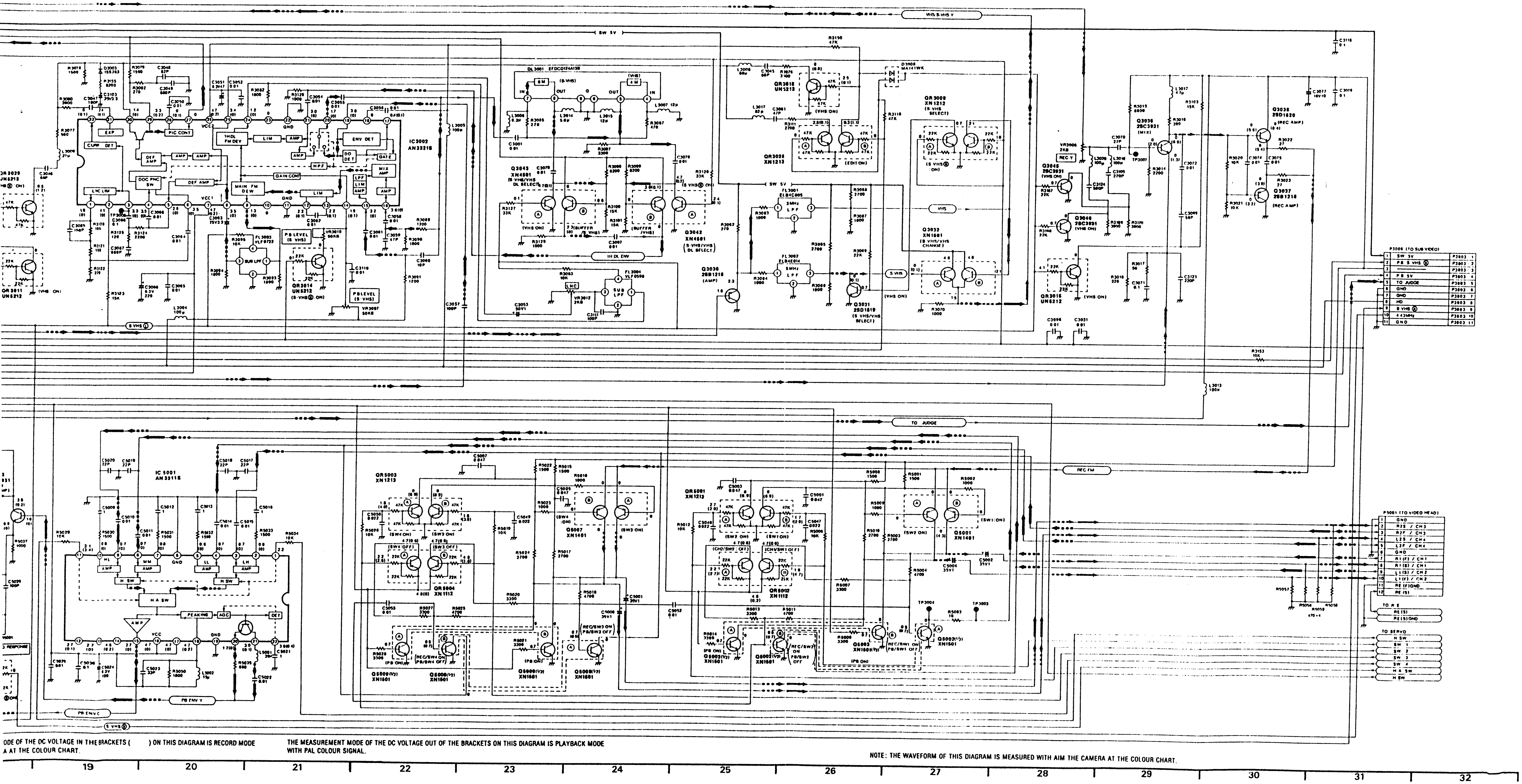
■ ■ ■ MAIN SIGNAL PATH IN REC MODE (S-VHS). ◀━━ MAIN SIGNAL PATH IN PLAYBACK MODE (VHS). ◀■ ■ ■ ■ MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)


REC FM Y
SW 5V
IC3001 AN3215S
CLAMP
NLC MIX
12dB AMP
DUMMY V.H
C MIX
NC MIX
LPF
LIM
Q3044 2SD1328
QR3030 UN5213
Q3027 2SD1819 (BUFFER)
QR3016 UN5212
QR3021 UN5213
QR3007 XN1212
IC3201 AN3282S
NL PROCESS
SUB EMPHASIS C.B.A. (VEP03687A)
TP GND2
QR3028 UN5213
QR3011 UN5212
IC3002 AN3321S
EXP
CURR DET
PIC CONT
DEF AMP
THOL FM DEV
LIM
ENV DET
GATE
MIX AMP
MAIN FM DEV
LNC LIM
DOC PNC SW
QR3014 UN5212
P.B LEVEL (S-VHS)
DL3001 EFDCD124A13B
Q3043 XN4501
SUB LPF
S VHS
V SYNC
PB ENV Y
IC8001 AN6367S
IC8002 MN6163AS
Q8004 2SB1218 (REC AMP)
QR3034 UN5213
Q8012 2SB1218 (AMP)
Q8013 2SC3931 (BUFFER)
Q8007 2SD1819 (BUFFER)
FL8001 ELB4B010
FL8002 ELB4B025
LPF
SCHMITT
APC
SUB BM
VCO
AFC
BG PULSE
V GATE
H GATE
H OUT
FREQ DET
FS
INV
TP8001
TP8002
TP8003
VR8001 1KB REC C
FL5001 VLF0623
PB CHROMA LPF
Q5018 2SD1819
QR5008 UN5213
QR5010 XN1212
Q5017 2SD1819 (BUFFER)
Q5016 2SC3931 (SP PB AMP)
Q5014 2SD1819 (SP PB BUFFER)
Q5013 2SC3931 (SP PB AMP)
FL5002 VLF0683
FREQ RESPONSE ADJ.
VR5001
TP5001
QR5007 UN5212
QR5006 XN1212
IC5001 AN3311S
AMP
H SW
HA SW
PEAKING
AGC
DET
PB ENV C
QR5003 XN1213
QR5004 XN1112
Q5007 XN1401
Q5008 XN1501
PB ENV Y
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

VHS). ◀■■■ MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS)


VHS/S-VHS Y
SW 5V
IC3002
AN3321S
DL3001
IC5001
AN3311S
P3006 (TO SUB VIDEO)
1 SW 5V P3803 1
2 PB S VHS Ⓗ P3803 2
3 P3803 3
4 PB 5V P3803 4
5 TO JUDGE P3803 5
6 GND P3803 6
7 GND P3803 7
8 HD P3803 8
9 S VHS Ⓗ P3803 9
10 4.43MHz P3803 10
11 GND P3803 11
TO JUDGE
REC FM
P5001 (TO VIDEO HEAD)
1 GND
2 R2S / CH3
3 R2F / CH3
4 L2S / CH4
5 L2F / CH4
6 GND
7 R1(F) / CH1
8 R1(S) / CH1
9 L1(S) / CH2
10 L1(F) / CH2
11 RE (F)GND
12 RE (S)
TO R.E
RE(S)
RE(S)GND
TO SERVO
H SW
SW 1
SW 2
SW 3
SW 4
H A SW
H SW
PB ENV C
PB ENV Y
S VHS Ⓗ
19
20
21
22
23
24
25
26
27
28
29
30
31
32

ODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE
A AT THE COLOUR CHART.

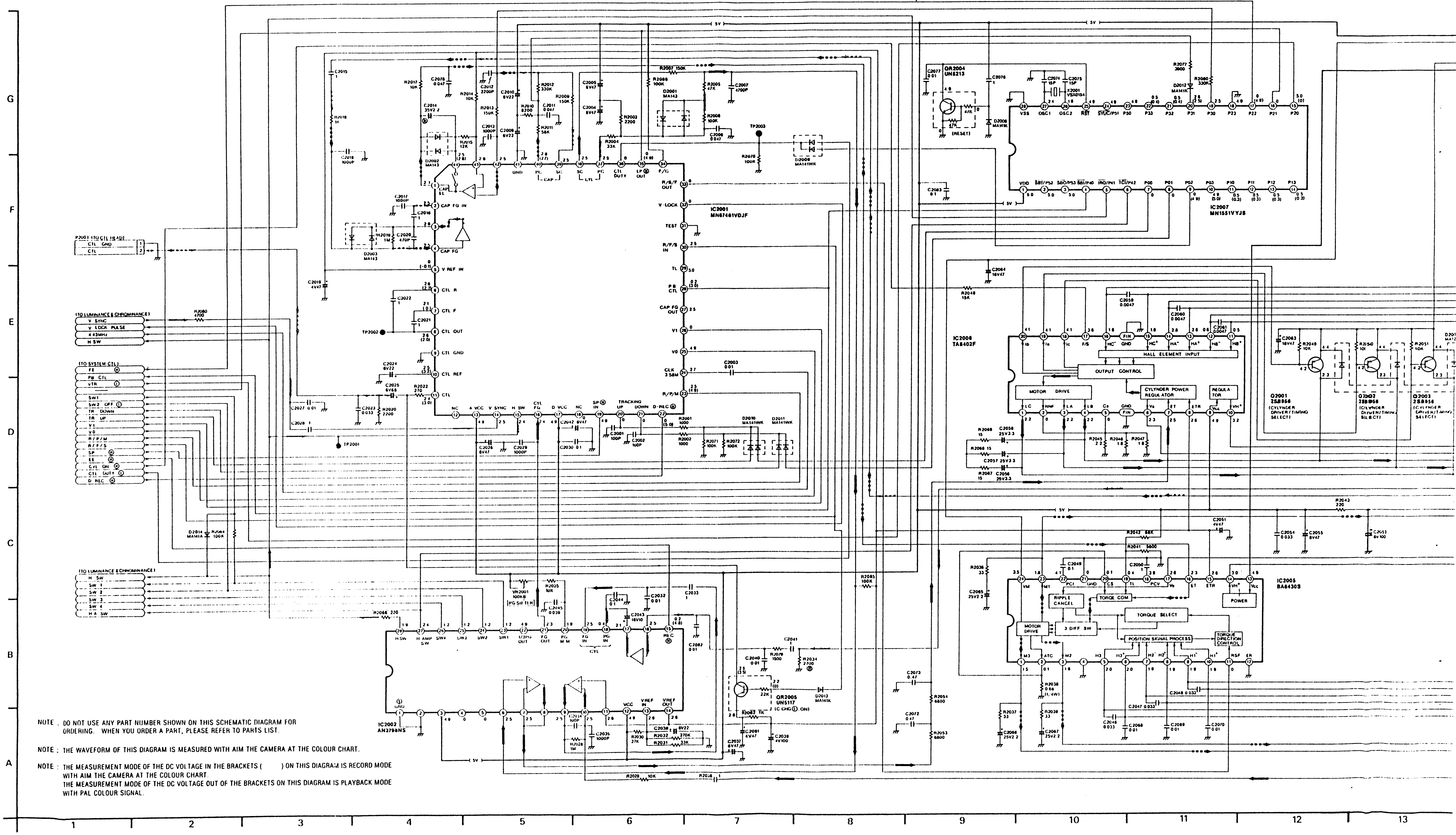
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

NOTE: THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

Next Page:
SERVO & SUB VIDEO Sectio

3-19. SERVO SCHEMATIC DIAGRAM

CYLINDER SERVO PHASE LOOP. CAPSTAN SERVO PHASE LOOP. CYLINDER SERVO SPEED LOOP. CAPSTAN SER



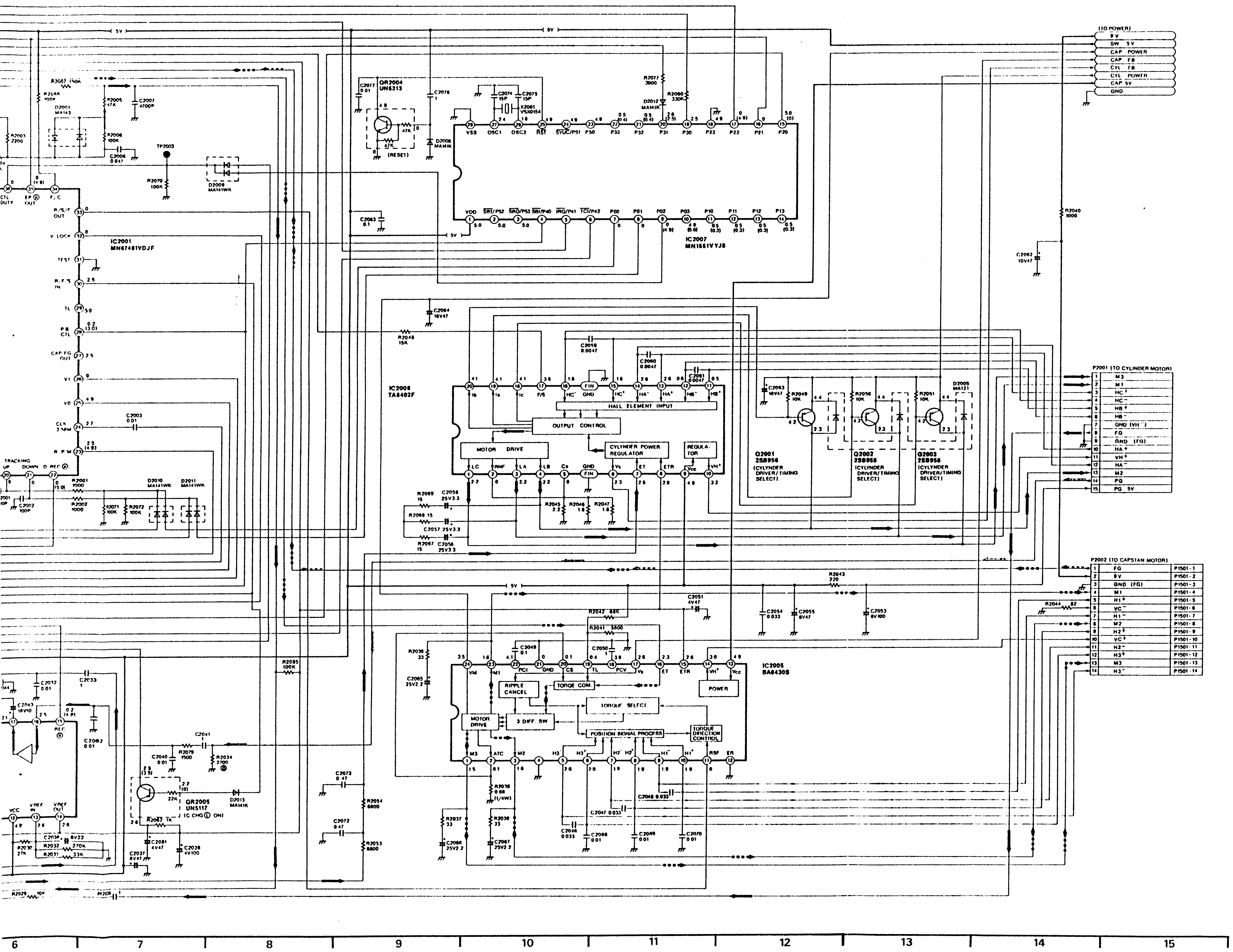
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12
13
IC2001
MN67461VDJF
IC2002
AN3798NS
IC2005
BA6430S
IC2006
TA8402F
IC2007
MN1551VYJS
QR2004
UN5213
QR2005
UN5117
Q2001
2SB956
Q2002
2SB956
Q2003
2SB956
P2001 (TO CTL HEAD)
CTL GND
CTL
(TO LUMINANCE & CHROMINANCE)
V SYNC
V LOCK PULSE
4.43MHz
H SW
(TO SYSTEM CTL)
FE
PB CTL
VTR
SW1
SW2 OFF
TR DOWN
TR UP
V1
V0
R/P/M
R/F/S
SP
EE
CYL ON
CTL DUTY
D REC
(TO LUMINANCE & CHROMINANCE)
H SW
SW 1
SW 2
SW 3
SW 4
H A SW
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLINDER POWER REGULATOR
REGULATOR
RIPPLE CANCEL
TORQE COM
TORQUE SELECT
MOTOR DRIVE
3 DIFF SW
POSITION SIGNAL PROCESS
TORQUE DIRECTION CONTROL
POWER
VH2001 100KB (PG SHIFTER)
(RESET)
5V
TP2001
TP2002
TP2003

NOTE . DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

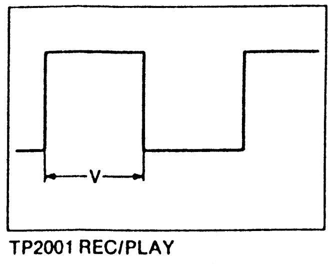
NOTE : THE WAVEFORM OF THIS DIAGRAM IS MEASURED WITH AIM THE CAMERA AT THE COLOUR CHART.

NOTE : THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

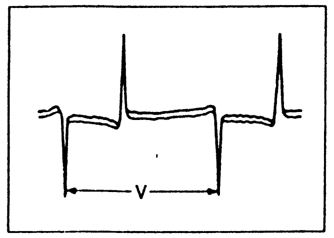
CAPSTAN SERVO PHASE LOOP. ◀━━ CYLINDER SERVO SPEED LOOP. ◀■ ■ ■ CAPSTAN SERVO SPEED LOOP.


5V
IC2001
MN67481VDJF
CTL DUTY
EP Ⓗ OUT
F/C
R/S/F OUT
V LOCK
TEST
R/F/S IN
TL
P.B CTL
CAP FG OUT
V1
V0
CLK 3.58M
R.P.M
TRACKING UP DOWN
D.REC Ⓗ
TP2003
D2009 MA141WK
D2001 MA143
D2010 MA141WK
D2011 MA141WK
QR2004 UN5213
(RESET)
D2008 MA141K
X2001 VSX0154
IC2007
MN1551VYJ8
VSS OSC1 OSC2 RST SYUC/P51 P50 P33 P32 P31 P30 P23 P22 P21 P20
VDD SBT/P52 SBO/P53 SBI/P40 IRQ/P41 TCI/P42 P00 P01 P02 P03 P10 P11 P12 P13
D2012 MA141K
(TO POWER)
9V
SW 5V
CAP POWER
CAP FB
CYL FB
CYL POWER
CAP 5V
GND
IC2006
TA8402F
Ib Ia Ic F/S HC⁻ GND HC⁺ HA⁻ HA⁺ HB⁻ HB⁺
HALL ELEMENT INPUT
OUTPUT CONTROL
MOTOR DRIVE
CYLYNDER POWER REGULATOR
REGULA-TOR
LC RNF LA LB Cs GND FIN Vs ET ETR Vcc VH⁺
Q2001 2SB956 (CYLYNDER DRIVER/TIMING SELECT)
Q2002 2SB956 (CYLYNDER DRIVER/TIMING SELECT)
Q2003 2SB956 (CYLYNDER DRIVER/TIMING SELECT)
D2005 MA121
P2001 (TO CYLINDER MOTOR)
1 M3
2 M1
3 HC⁺
4 HC⁻
5 HB⁺
6 HB⁻
7 GND (VH⁻)
8 FG
9 GND (FG)
10 HA⁺
11 VH⁺
12 HA⁻
13 M2
14 PG
15 PG 5V
P2002 (TO CAPSTAN MOTOR)
1 FG P1501-1
2 9V P1501-2
3 GND (FG) P1501-3
4 M1 P1501-4
5 H1⁺ P1501-5
6 VC⁻ P1501-6
7 H1⁻ P1501-7
8 M2 P1501-8
9 H2⁺ P1501-9
10 VC⁺ P1501-10
11 H2⁻ P1501-11
12 H3⁺ P1501-12
13 M3 P1501-13
14 H3⁻ P1501-14
IC2005
BA6430S
VM M1 PCI GND CS TL PCV Vs ET ETR VH⁺ Vcc
RIPPLE CANCEL
TORQE COM.
TORQUE SELECT
MOTOR DRIVE
3 DIFF. SW
POSITION SIGNAL PROCESS
TORQUE DIRECTION CONTROL
POWER
M3 ATC M2 H3⁻ H3⁺ H2⁻ H2⁺ H1⁻ H1⁺ RSF ER
QR2005 UN5117 (C CHG Ⓛ ON)
D2013 MA141K
VCC VREF IN VREF OUT
REC Ⓗ
6
7
8
9
10
11
12
13
14
15

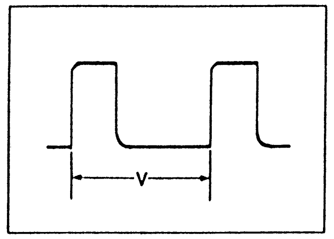
SERVO CIRCUIT TP (Test Point) WAVE FORM (REF. NO. 2000 Series)



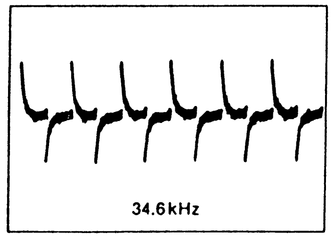
TP2001 REC/PLAY
1.0V/10msec. div. 4.0Vp-p



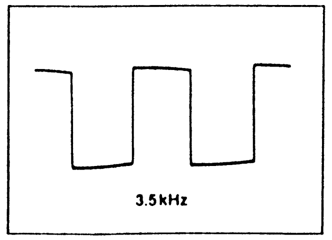
TP2002 PLAY
1.0V/10msec. div. 4.5Vp-p



TP2002 REC
2V/10msec. div. 5.0Vp-p



TP2003 PLAY
50mV/20μsec. div. 150mVp-p



TP2003 REC
2.0V/20msec. div. 4.5Vp-p

3-20. SUB VIDEO SCH

NOTE:
DO NOT USE ANY PART NUMB
SCHEMATIC DIAGRAM FOR ORD
ORDER A PART, PLEASE REFER

P3803(TO LUMINANCE &

P3006·1	SW 5V
P3006·2	P.B. S·VHS Ⓗ
P3006·3	HSS
P3006·4	P.B. 5V
P3006·5	TO JUDGE
P3006·6	GND
P3006·7	GND
P3006·8	HD
P3006·9	S·VHS Ⓗ
P3006·10	4.43M FSC
P3006·11	GND

NOTE: THE MEASUREMENT
WITH AIM THE CAM

3-20. SUB VIDEO SCHEMATIC DIAGRAM

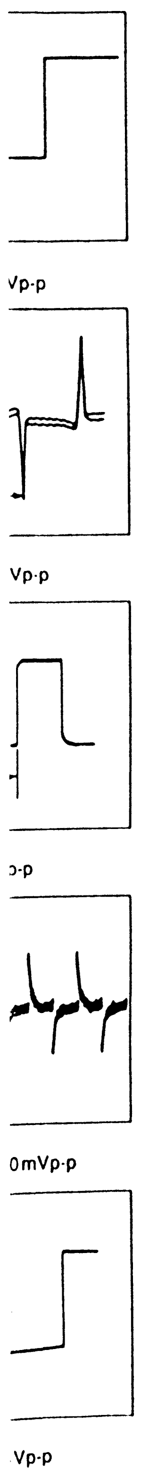
MAIN SIGNAL PATH IN REC MODE (VHS).

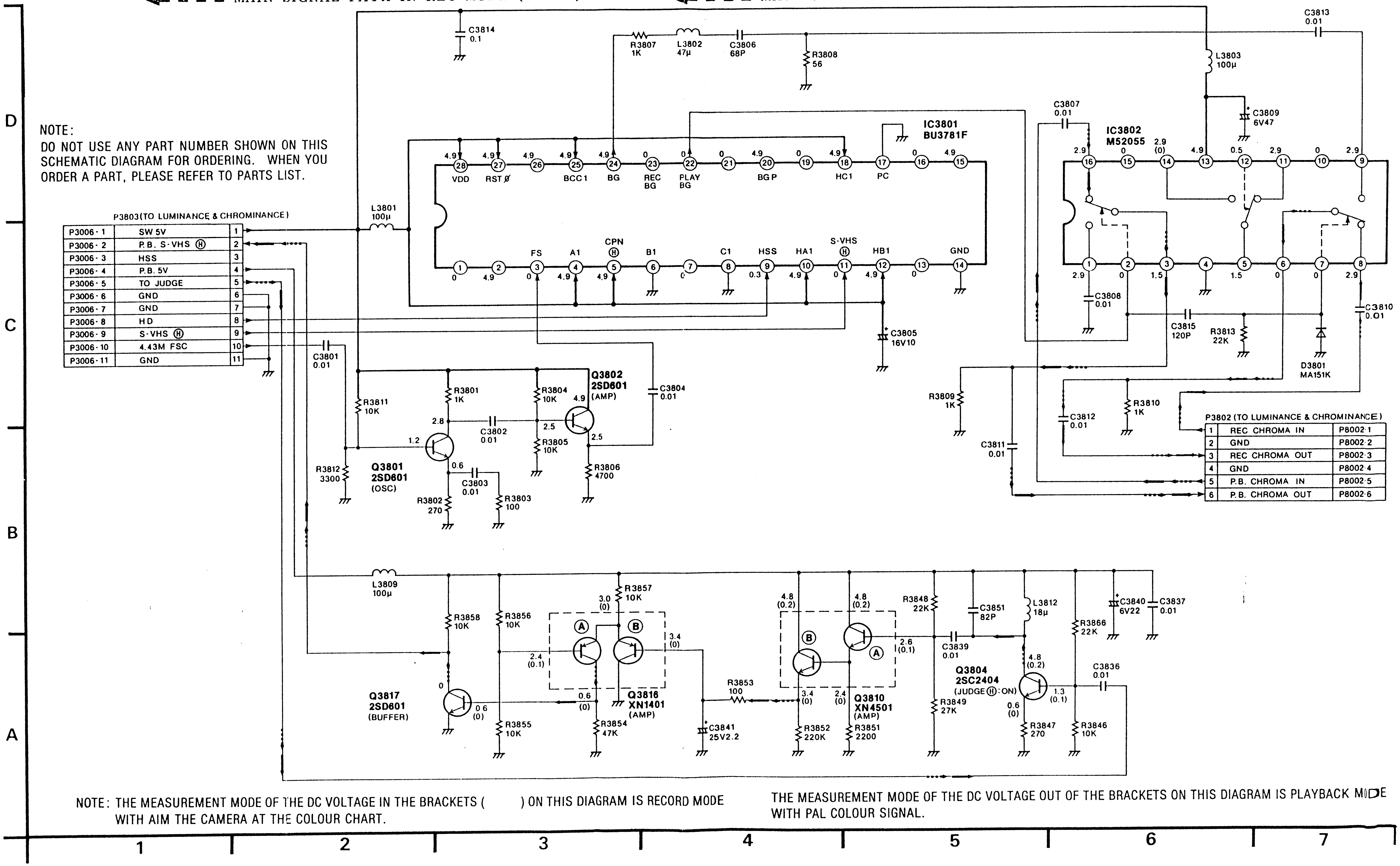
MAIN SIGNAL PATH IN REC MODE (S-VHS).

MAIN SIGNAL PATH IN PLAYBACK MODE (VHS).

MAIN SIGNAL PATH IN PLAYBACK MODE (S-VHS).

' (Test Point)
NO. 2000 Series)





D
C
B
A
1
2
3
4
5
6
7
C3814
0.1
R3807
1K
L3802
47μ
C3806
68P
R3808
56
C3813
0.01
L3803
100μ
C3809
6V47
C3807
0.01
IC3801
BU3781F
IC3802
M52055
VDD
RST Ø
BCC1
BG
REC BG
PLAY BG
BGP
HC1
PC
FS
A1
CPN Ⓗ
B1
C1
HSS
HA1
S-VHS Ⓗ
HB1
GND
L3801
100μ
C3805
16V10
C3808
0.01
C3815
120P
R3813
22K
C3810
0.01
D3801
MA151K
R3809
1K
C3812
0.01
R3810
1K
C3811
0.01
C3801
0.01
R3811
10K
R3801
1K
R3804
10K
Q3802
2SD601
(AMP)
C3804
0.01
C3802
0.01
R3805
10K
R3806
4700
Q3801
2SD601
(OSC)
R3812
3300
C3803
0.01
R3802
270
R3803
100
L3809
100μ
R3858
10K
R3856
10K
R3857
10K
Q3816
XN1401
(AMP)
Q3817
2SD601
(BUFFER)
R3855
10K
R3854
47K
R3853
100
C3841
25V2.2
R3852
220K
R3851
2200
Q3810
XN4501
(AMP)
R3848
22K
C3851
82P
L3812
18μ
C3839
0.01
Q3804
2SC2404
(JUDGE Ⓗ : ON)
R3849
27K
R3847
270
R3866
22K
C3840
6V22
C3837
0.01
C3836
0.01
R3846
10K
Ⓐ
Ⓑ

NOTE:
DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

P3803(TO LUMINANCE & CHROMINANCE)

P3006 - 1	SW 5V	1
P3006 - 2	P.B. S-VHS Ⓗ	2
P3006 - 3	HSS	3
P3006 - 4	P.B. 5V	4
P3006 - 5	TO JUDGE	5
P3006 - 6	GND	6
P3006 - 7	GND	7
P3006 - 8	HD	8
P3006 - 9	S-VHS Ⓗ	9
P3006 - 10	4.43M FSC	10
P3006 - 11	GND	11

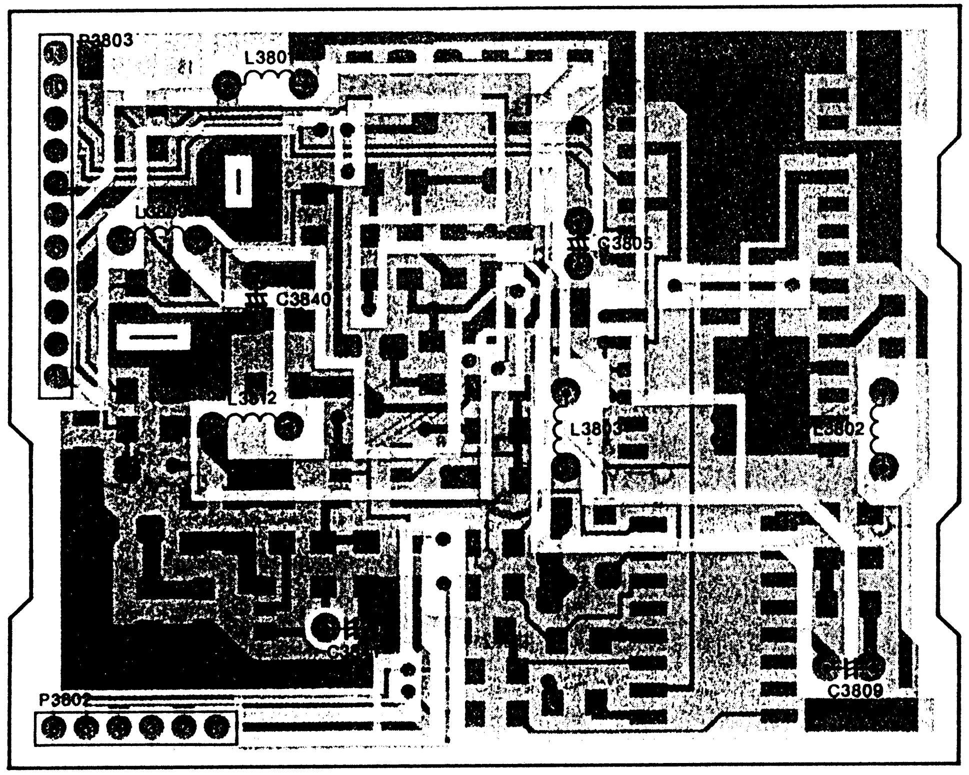
P3802 (TO LUMINANCE & CHROMINANCE)

1	REC CHROMA IN	P8002·1
2	GND	P8002·2
3	REC CHROMA OUT	P8002·3
4	GND	P8002·4
5	P.B. CHROMA IN	P8002·5
6	P.B. CHROMA OUT	P8002·6

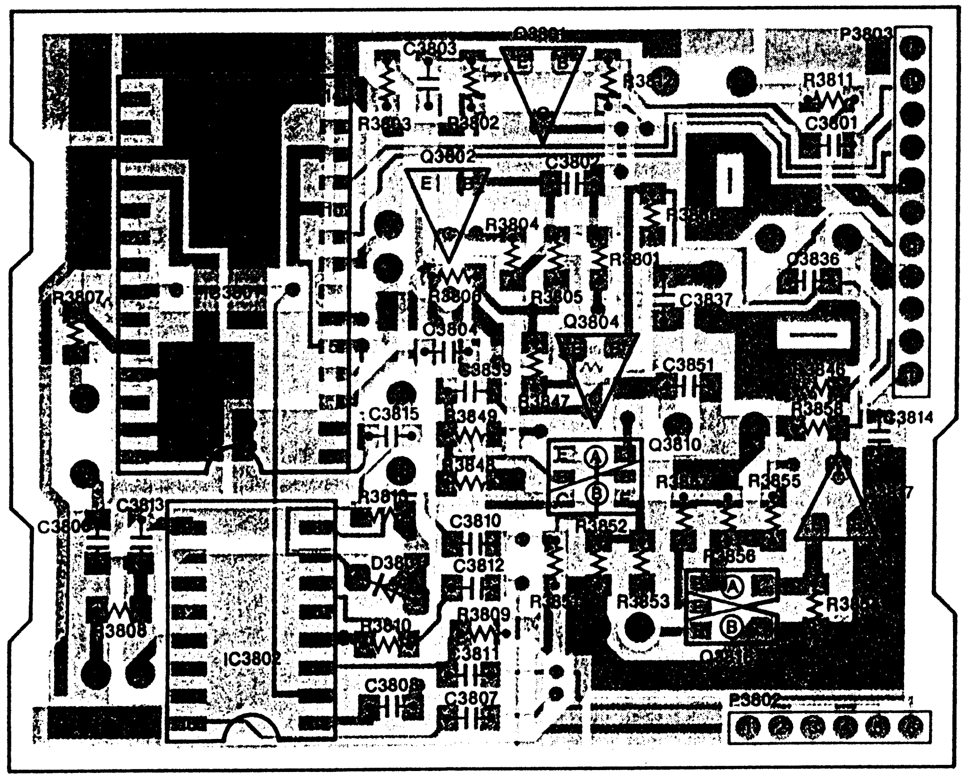
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART.

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

3-21. SUB VIDEO C.B.A. (VEP03583A)


P3803
L3801
C3805
C3840
L3812
L3803
L3802
P3802
C3809

REF. NO. 3800 SERIES (COMPONENT SIDE)

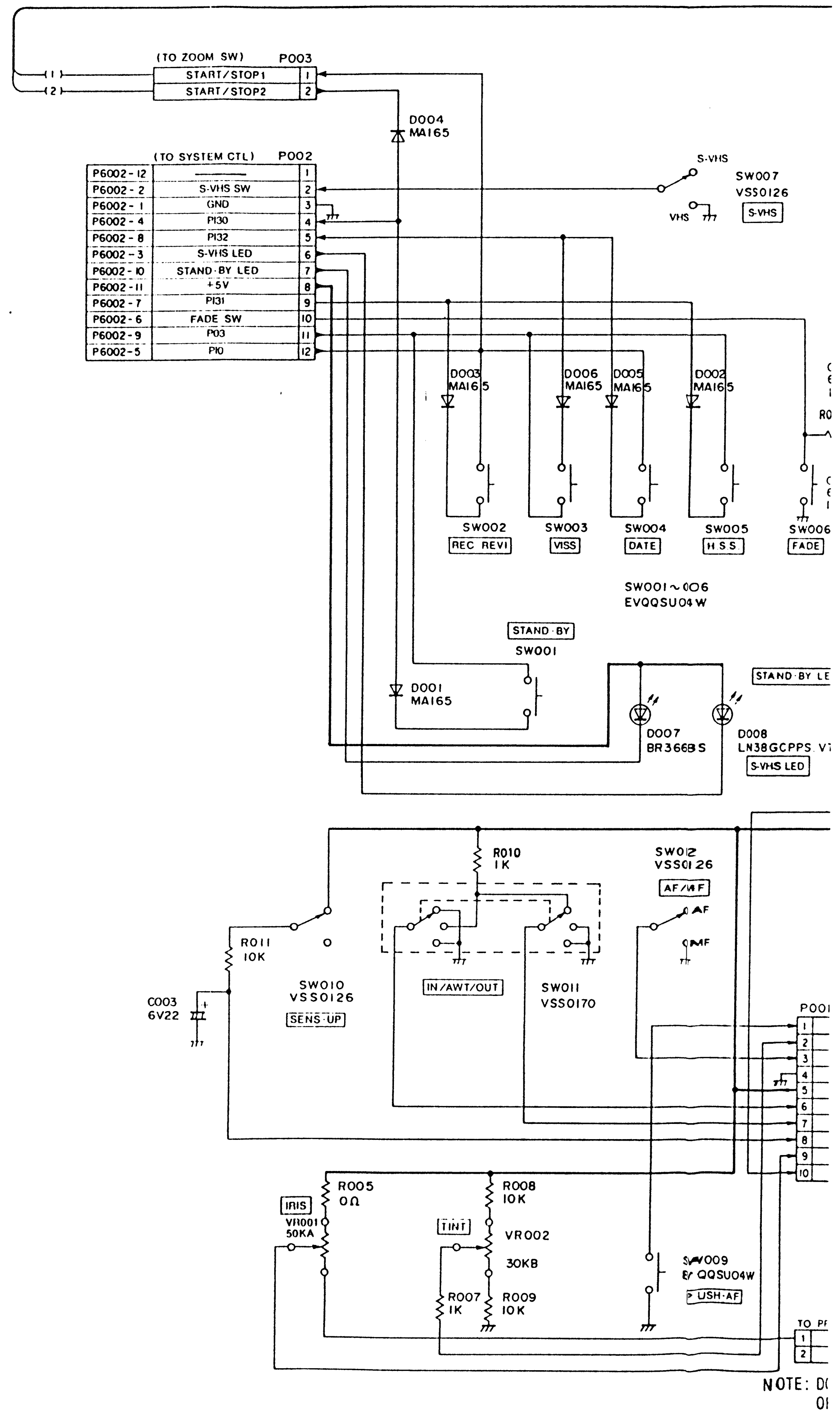

C3803
Q3801
P3803
R3811
R3803
R3802
C3801
Q3802
C3802
R3804
R3801
C3836
R3807
R3805
C3837
Q3804
C3851
C3815
C3849
Q3810
C3814
C3813
R3852
R3855
C3810
C3812
R3856
R3853
C3806
IC3802
R3810
R3809
R3811
C3808
C3807
P3802

REF. NO. 3800 SERIES (FOIL SIDE)

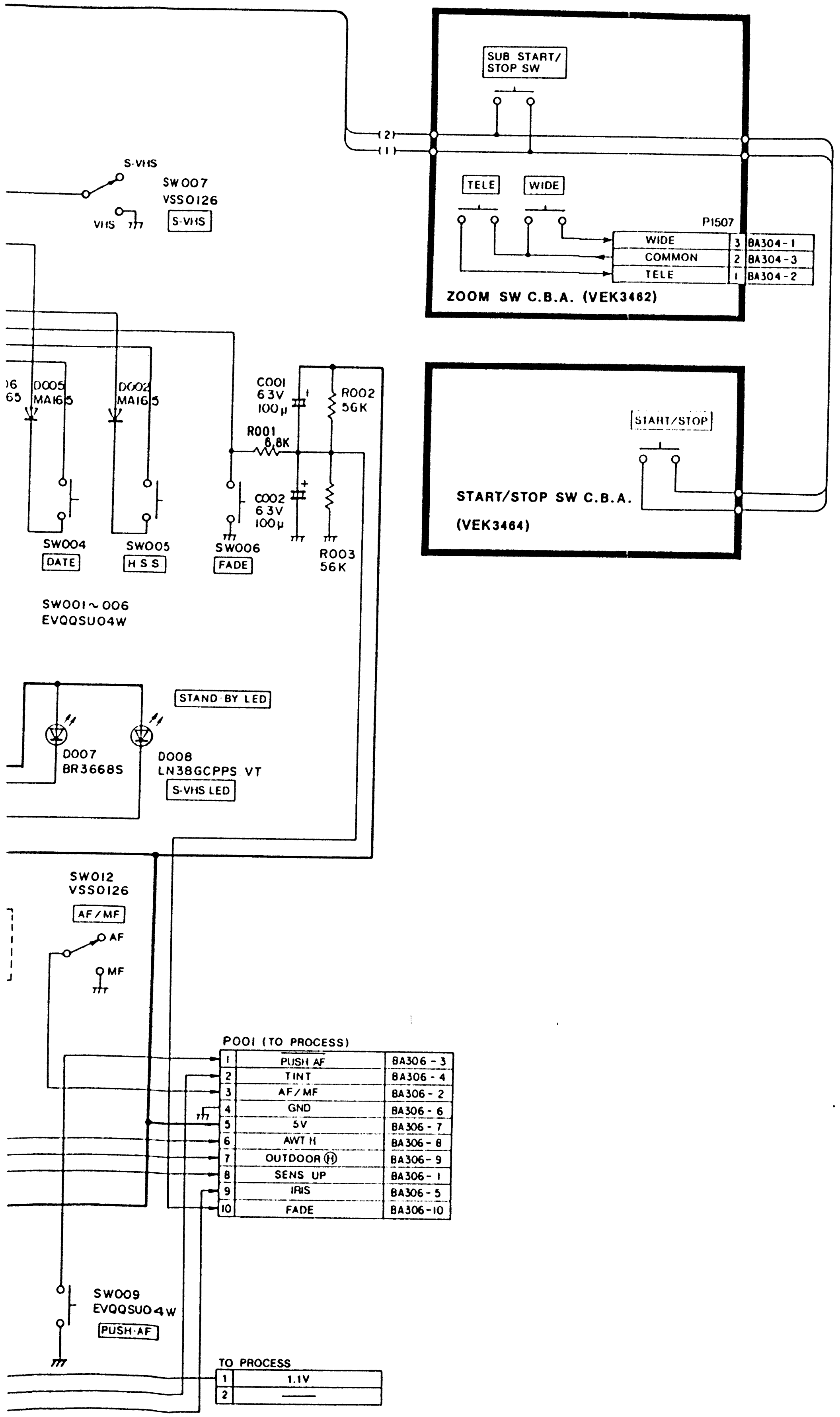
SUB VIDEO C.B.A.	
Transistor	
Q3801	B-2 Ⓕ
Q3802	B-2 Ⓕ
Q3804	B-2 Ⓕ
Q3810	A-2 Ⓕ
Q3816	A-2 Ⓕ
Q3817	A-3 Ⓕ
Integrated Circuit	
IC3801	B-1 Ⓕ
IC3802	A-1 Ⓕ
Connector	
P3802	A-3 Ⓕ
P3802	C-1 Ⓒ
P3803	B-3 Ⓕ
P3803	D-1 Ⓒ

ADDRESS INFORMATION
Ⓒ ··· COMPONENT SIDE
Ⓕ ··· FOIL SIDE

3-22. CAMERA OPERATION SCHEMATIC DIAGRAM


(TO ZOOM SW) P003
START/STOP1
START/STOP2
D004 MA165
(TO SYSTEM CTL) P002
P6002-12
P6002-2 S-VHS SW
P6002-1 GND
P6002-4 P130
P6002-8 P132
P6002-3 S-VHS LED
P6002-10 STAND-BY LED
P6002-11 +5V
P6002-7 P131
P6002-6 FADE SW
P6002-9 P03
P6002-5 P10
S-VHS
VHS
SW007 VSS0126
S-VHS
D003 MA165
D006 MA165
D005 MA165
D002 MA165
SW002 REC REVI
SW003 VISS
SW004 DATE
SW005 H S S
SW006 FADE
SW001~006 EVQQSU04W
STAND-BY
SW001
D001 MA165
D007 BR3668S
D008 LN38GCPPS
S-VHS LED
STAND-BY LE
R010 1K
SW012 VSS0126
AF/MF
AF
MF
R011 10K
SW010 VSS0126
SENS-UP
IN/AWT/OUT
SW011 VSS0170
C003 6V22
P001
R005 0Ω
R008 10K
IRIS
VR001 50KA
TINT
VR002 30KB
R007 1K
R009 10K
SW009 EVQQSU04W
PUSH-AF
TO P
NOTE: D

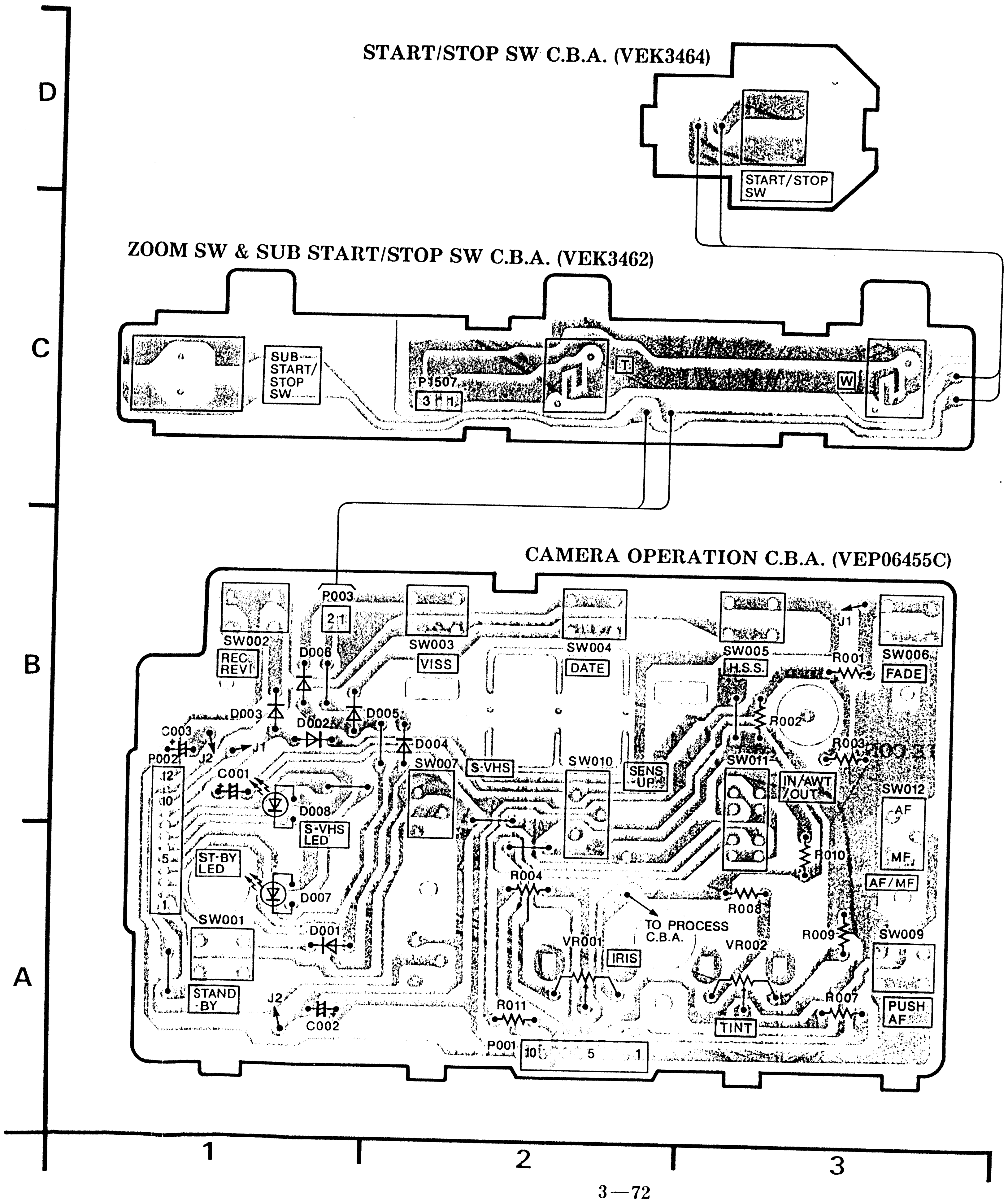
DIAGRAM


SUB START/ STOP SW
(2)
(1)
TELE
WIDE
P1507
WIDE
COMMON
TELE
3 BA304-1
2 BA304-3
1 BA304-2
ZOOM SW C.B.A. (VEK3462)
START/STOP
START/STOP SW C.B.A.
(VEK3464)
S-VHS
VHS
SW007
VSS0126
S-VHS
D005 MA165
D002 MA165
C001 6.3V 100μ
R002 56K
R001 6.8K
C002 6.3V 100μ
R003 56K
SW004 DATE
SW005 H.S.S.
SW006 FADE
SW001~006
EVQQSU04W
STAND BY LED
D007 BR3668S
D008 LN38GCPPS VT
S-VHS LED
SW012
VSS0126
AF/MF
AF
MF
SW009
EVQQSU04W
PUSH-AF
P001 (TO PROCESS)
1 PUSH AF BA306-3
2 TINT BA306-4
3 AF/MF BA306-2
4 GND BA306-6
5 5V BA306-7
6 AWT H BA306-8
7 OUTDOOR (H) BA306-9
8 SENS UP BA306-1
9 IRIS BA306-5
10 FADE BA306-10
TO PROCESS
1 1.1V
2 ——

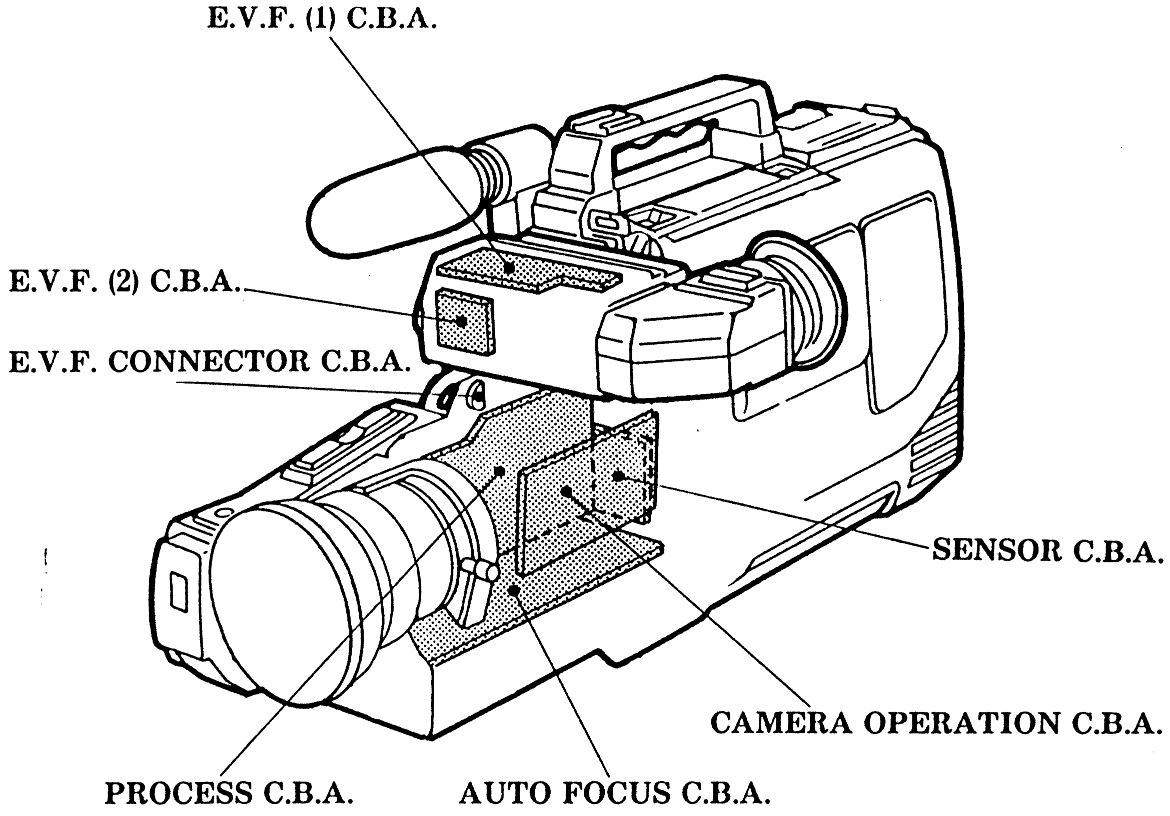
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

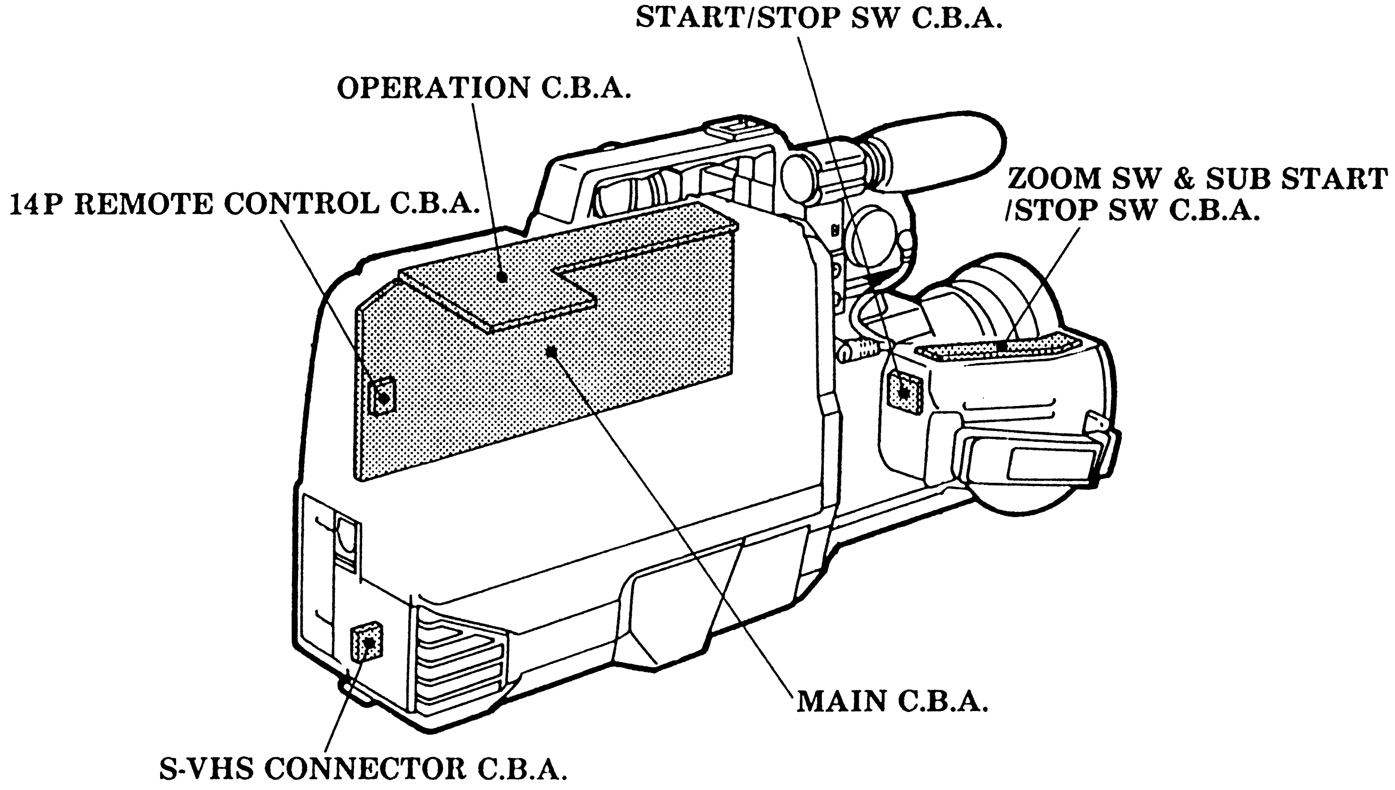
3 4 5

3-23. CAMERA OPERATION C.B.A. (VEP06455C)


D
C
B
A
1
2
3
START/STOP SW C.B.A. (VEK3464)
START/STOP SW
ZOOM SW & SUB START/STOP SW C.B.A. (VEK3462)
SUB START/ STOP SW
P1507
3 1
T
W
CAMERA OPERATION C.B.A. (VEP06455C)
P003
2 1
SW002
REC. REVI
D006
SW003
VISS
SW004
DATE
SW005
H.S.S.
J1
R001
SW006
FADE
D003
D002
D005
D004
C003
P002
12
10
5
1
J2
J1
C001
D008
S-VHS LED
ST-BY LED
D007
SW001
STAND -BY
D001
J2
C002
SW007
S-VHS
SW010
SENS -UP
SW011
IN/AWT /OUT
R002
R003
SW012
AF
MF
AF/MF
R010
R004
R008
TO PROCESS C.B.A.
VR001
IRIS
VR002
R009
SW009
R011
R007
TINT
PUSH AF
P001
10 5 1

3-24. CIRCUIT BOARD LAYOUT

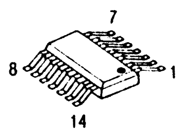

E.V.F. (1) C.B.A.
E.V.F. (2) C.B.A.
E.V.F. CONNECTOR C.B.A.
SENSOR C.B.A.
CAMERA OPERATION C.B.A.
PROCESS C.B.A.
AUTO FOCUS C.B.A.


START/STOP SW C.B.A.
OPERATION C.B.A.
ZOOM SW & SUB START /STOP SW C.B.A.
14P REMOTE CONTROL C.B.A.
MAIN C.B.A.
S-VHS CONNECTOR C.B.A.

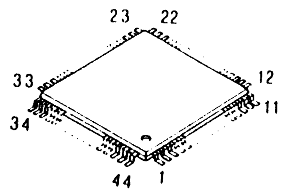
Back Page:
SUB VIDEO &
CAMERA OPERATION Section

3-25. ICs & TRs INFORMATION

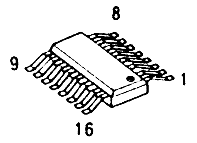
GENERAL CIRCUIT Section



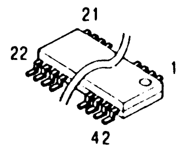
AN1324NS
S6700A
LM2902M
NJM2902M


23
22
33
12
34
11
44
1

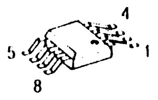
µPD9313GB
MN67461VDJF



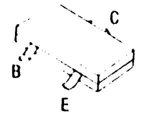
MN4094S
MN4052BS
M52055



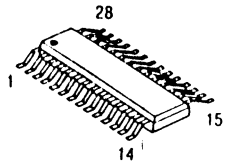
AN2583S
AN2153S



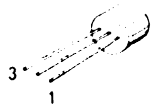
AN1358S
AN6914S
AN6562S
NJM2903M
NJM4558M
NJM3415M
RC3415M
RC4558M
µPD358G2
µPD1513G



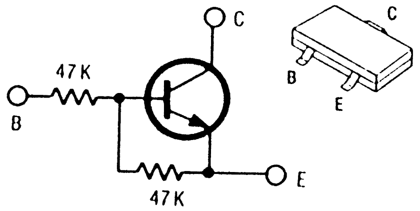
2SA812
2SA1255
2SA1532
2SA1610
2SB710
2SB779
2SB956
2SB970
2SB1218
2SB1219
2SB1220
2SC2404
2SC3138
2SC3930
2SC3931
2SC3938
2SC4178
2SD601
2SD1328
2SD1819
2SD1820
2SD1823



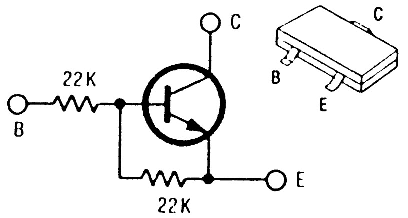
AN3798S
MN1551VTJS
AN3215S
BU3781F



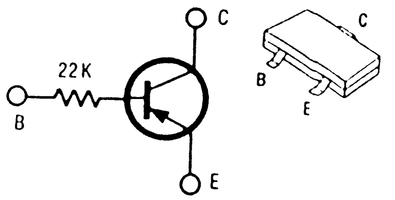
AN78N05


C
47K
B
47K
E
C
B
E

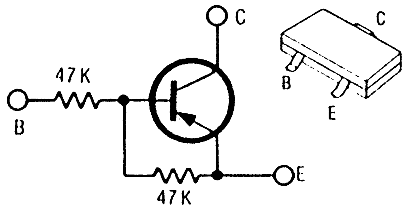
UN5213
UN2213
GA1L4M


C
22K
B
22K
E
C
B
E

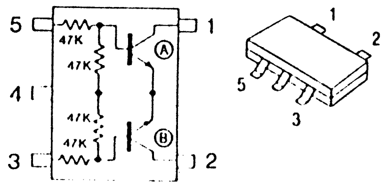
UN5212
GA1F4M



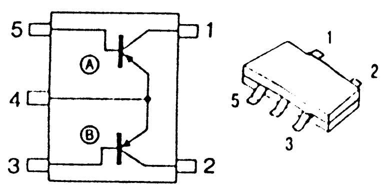
UN5117


C
47K
B
47K
E
C
B
E

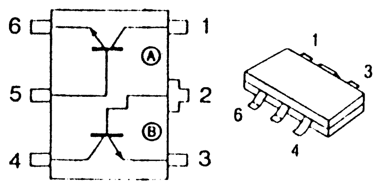
UN5113


5
47K
47K
4
47K
47K
3
1
Ⓐ
Ⓑ
2
1
2
5
3

XN1213



XN1401


6
Ⓐ
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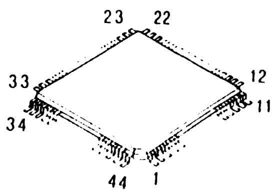
Ⓑ
4
1
2
3
1
3
6
4

XN4501

SENSOR Section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22
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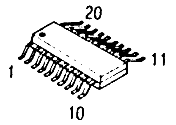
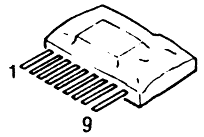
34
11
44
1

MN5103

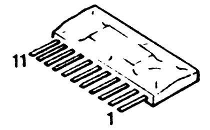


µPD6147G

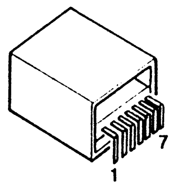


MC8088B

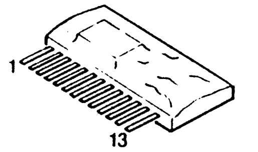
PROCESS, ENCODER Section



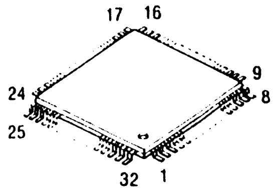
VCR0255



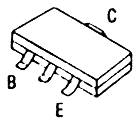
MC8181A



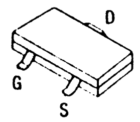
VCR0256


17 16
9
8
24
25
32 1

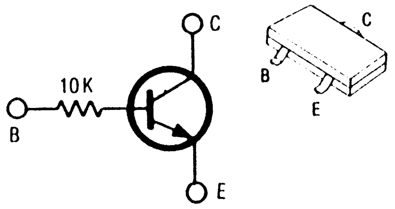
AN2253FA



2SD874

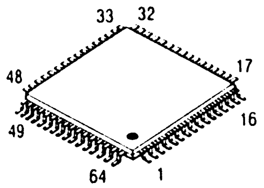


2SK316

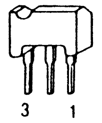


UN5215

AUTO FOCUS Section

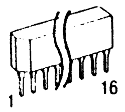

33 32
48
17
49
16
64 1

MN15865VPS

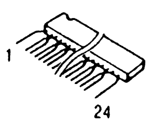


MN1280Q

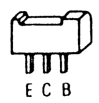
POWER SUPPLY Section



UN102

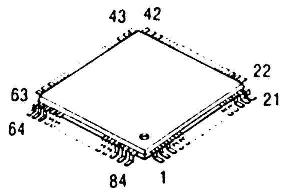


BA6149LS



2SD1293M

SYSTEM CONTROL Section


43 42
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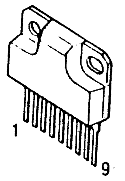
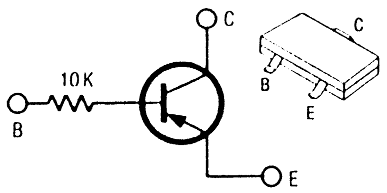
21
64
84 1

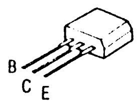
MN15361VNU



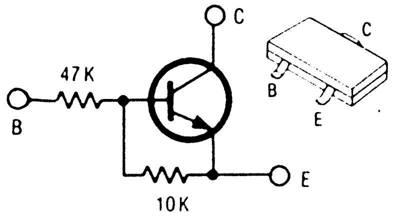
M54543L



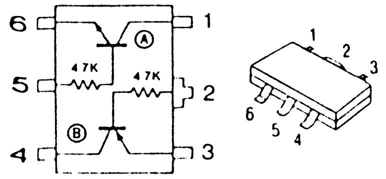
UN5115
GN1A4Z



2SA1175

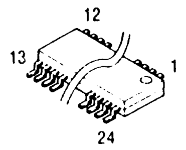

C
47K
B
10K
E
C
B
E

UN521E

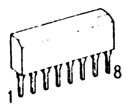

6
Ⓐ
1
5
47K
47K
2
Ⓑ
4
3
1 2 3
6
5 4

XN4316

AUDIO Section

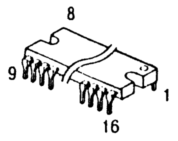


µPC2300G



M5201L

SERVO Section



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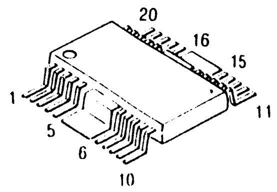
20
16
15
1
11
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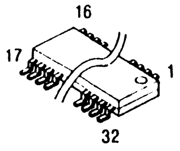
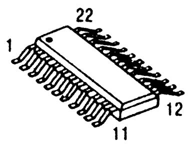
6
10

TA8402F

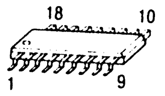
LUMINANCE & CHROMINANCE and HEAD AMP Section



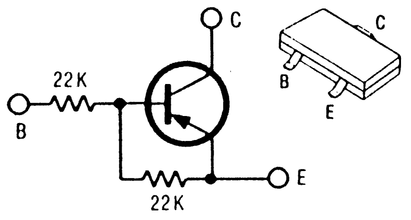
AN3321S



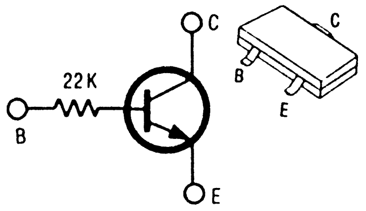
AN3311S
AN6367S



MN6163AS


C
22K
B
22K
E
C
B
E

UN5112



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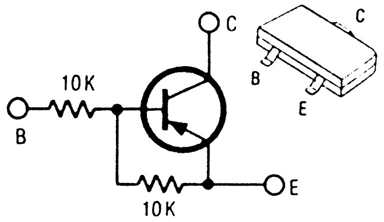
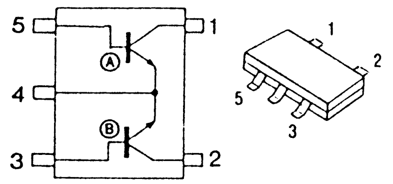

C
10K
B
10K
E
C
B
E

UN5111



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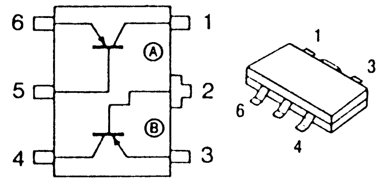
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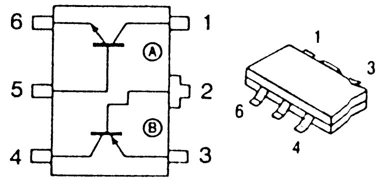
1
Ⓐ
5
2
Ⓑ
4
3
1
3
6
4

XN4401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Ⓐ
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Ⓑ
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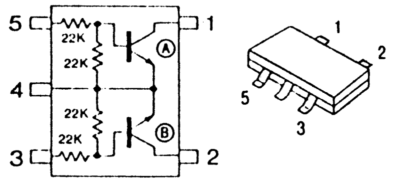
XN4601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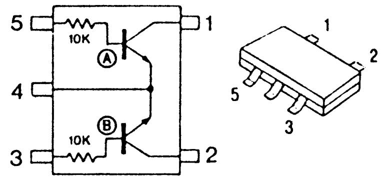
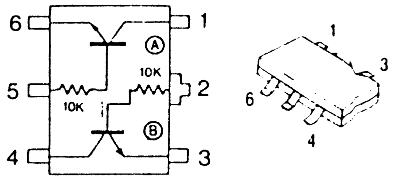
22K
22K
1
Ⓐ
4
22K
22K
Ⓑ
3
2
1
2
5
3

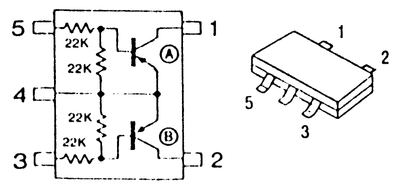
XN1212


5
10K
1
Ⓐ
4
Ⓑ
10K
3
2
1
2
5
3

XN1215

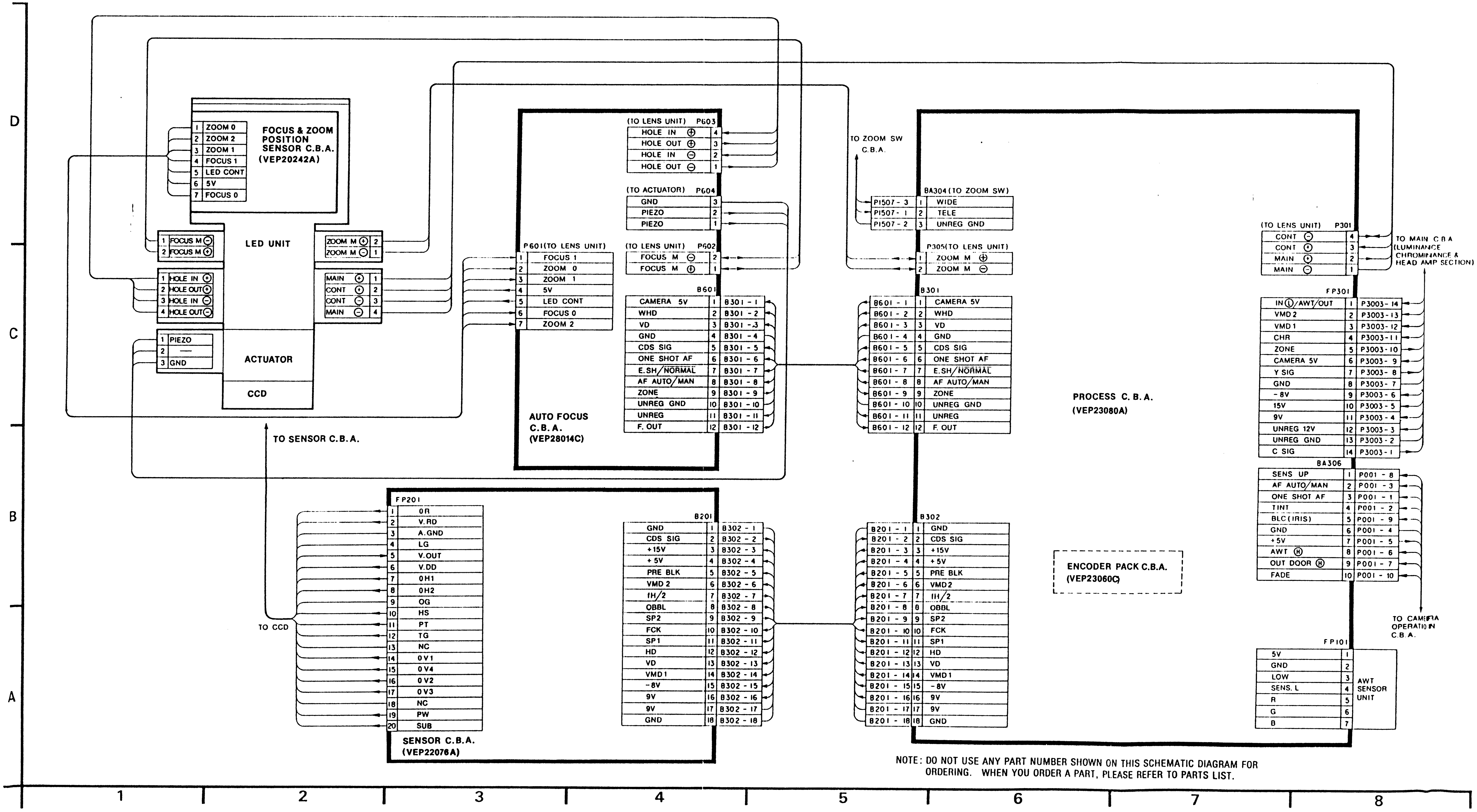

6
1
Ⓐ
5
10K
10K
2
Ⓑ
4
3
1
3
6
4

XN4215


5
22K
22K
1
Ⓐ
4
22K
22K
Ⓑ
3
2
1
2
5
3

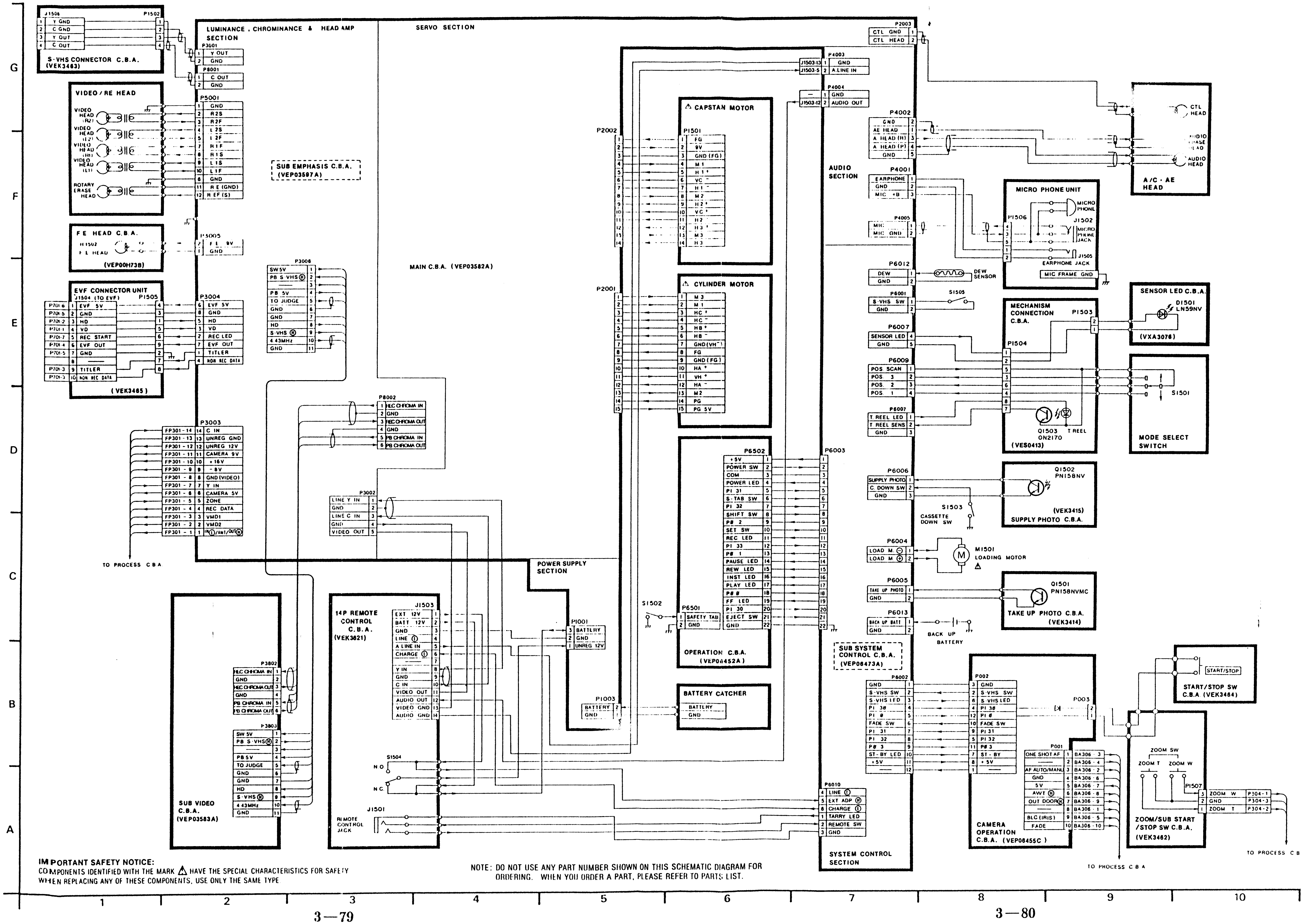
XN1112

3-26. CAMERA INTERCONNECTION SCHEMATIC DIAGRAM


FOCUS & ZOOM POSITION SENSOR C.B.A. (VEP20242A)
1 ZOOM 0
2 ZOOM 2
3 ZOOM 1
4 FOCUS 1
5 LED CONT
6 5V
7 FOCUS 0
LED UNIT
1 FOCUS M ⊖
2 FOCUS M ⊕
ZOOM M ⊕ 2
ZOOM M ⊖ 1
1 HOLE IN ⊕
2 HOLE OUT ⊕
3 HOLE IN ⊖
4 HOLE OUT ⊖
MAIN ⊕ 1
CONT ⊕ 2
CONT ⊖ 3
MAIN ⊖ 4
1 PIEZO
2 —
3 GND
ACTUATOR
CCD
TO SENSOR C.B.A.
(TO LENS UNIT) P603
HOLE IN ⊕ 4
HOLE OUT ⊕ 3
HOLE IN ⊖ 2
HOLE OUT ⊖ 1
(TO ACTUATOR) P604
GND 3
PIEZO 2
PIEZO 1
P601(TO LENS UNIT)
1 FOCUS 1
2 ZOOM 0
3 ZOOM 1
4 5V
5 LED CONT
6 FOCUS 0
7 ZOOM 2
(TO LENS UNIT) P602
FOCUS M ⊖ 2
FOCUS M ⊕ 1
B601
CAMERA 5V 1 B301 - 1
WHD 2 B301 - 2
VD 3 B301 - 3
GND 4 B301 - 4
CDS SIG 5 B301 - 5
ONE SHOT AF 6 B301 - 6
E.SH/NORMAL 7 B301 - 7
AF AUTO/MAN 8 B301 - 8
ZONE 9 B301 - 9
UNREG GND 10 B301 - 10
UNREG 11 B301 - 11
F. OUT 12 B301 - 12
AUTO FOCUS C.B.A. (VEP28014C)
TO ZOOM SW C.B.A.
BA304 (TO ZOOM SW)
P1507 - 3 1 WIDE
P1507 - 1 2 TELE
P1507 - 2 3 UNREG GND
P305(TO LENS UNIT)
1 ZOOM M ⊕
2 ZOOM M ⊖
B301
B601 - 1 1 CAMERA 5V
B601 - 2 2 WHD
B601 - 3 3 VD
B601 - 4 4 GND
B601 - 5 5 CDS SIG
B601 - 6 6 ONE SHOT AF
B601 - 7 7 E.SH/NORMAL
B601 - 8 8 AF AUTO/MAN
B601 - 9 9 ZONE
B601 - 10 10 UNREG GND
B601 - 11 11 UNREG
B601 - 12 12 F. OUT
PROCESS C. B. A. (VEP23080A)
(TO LENS UNIT) P301
CONT ⊖ 4
CONT ⊕ 3
MAIN ⊕ 2
MAIN ⊖ 1
TO MAIN C.B.A (LUMINANCE CHROMINANCE & HEAD AMP SECTION)
FP301
IN Ⓘ/AWT/OUT 1 P3003 - 14
VMD 2 2 P3003 - 13
VMD 1 3 P3003 - 12
CHR 4 P3003 - 11
ZONE 5 P3003 - 10
CAMERA 5V 6 P3003 - 9
Y SIG 7 P3003 - 8
GND 8 P3003 - 7
- 8V 9 P3003 - 6
15V 10 P3003 - 5
9V 11 P3003 - 4
UNREG 12V 12 P3003 - 3
UNREG GND 13 P3003 - 2
C SIG 14 P3003 - 1
BA306
SENS UP 1 P001 - 8
AF AUTO/MAN 2 P001 - 3
ONE SHOT AF 3 P001 - 1
TINT 4 P001 - 2
BLC (IRIS) 5 P001 - 9
GND 6 P001 - 4
+5V 7 P001 - 5
AWT Ⓗ 8 P001 - 6
OUT DOOR Ⓗ 9 P001 - 7
FADE 10 P001 - 10
TO CAMERA OPERATION C.B.A.
FP201
1 OR
2 V.RD
3 A.GND
4 LG
5 V.OUT
6 V.DD
7 OH1
8 OH2
9 OG
10 HS
11 PT
12 TG
13 NC
14 OV1
15 OV4
16 OV2
17 OV3
18 NC
19 PW
20 SUB
TO CCD
SENSOR C.B.A. (VEP22076A)
B201
GND 1 B302 - 1
CDS SIG 2 B302 - 2
+15V 3 B302 - 3
+5V 4 B302 - 4
PRE BLK 5 B302 - 5
VMD 2 6 B302 - 6
fH/2 7 B302 - 7
OBBL 8 B302 - 8
SP2 9 B302 - 9
FCK 10 B302 - 10
SP1 11 B302 - 11
HD 12 B302 - 12
VD 13 B302 - 13
VMD1 14 B302 - 14
-8V 15 B302 - 15
9V 16 B302 - 16
9V 17 B302 - 17
GND 18 B302 - 18
B302
B201 - 1 1 GND
B201 - 2 2 CDS SIG
B201 - 3 3 +15V
B201 - 4 4 +5V
B201 - 5 5 PRE BLK
B201 - 6 6 VMD2
B201 - 7 7 fH/2
B201 - 8 8 OBBL
B201 - 9 9 SP2
B201 - 10 10 FCK
B201 - 11 11 SP1
B201 - 12 12 HD
B201 - 13 13 VD
B201 - 14 14 VMD1
B201 - 15 15 -8V
B201 - 16 16 9V
B201 - 17 17 9V
B201 - 18 18 GND
ENCODER PACK C.B.A. (VEP23060C)
FP101
5V 1
GND 2
LOW 3
SENS. L 4
R 5
G 6
B 7
AWT SENSOR UNIT
D
C
B
A
1
2
3
4
5
6
7
8

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

3-27. VTR INTERCONNECTION SCHEMATIC DIAGRAM


S-VHS CONNECTOR C.B.A. (VEK3463)
J1506
P1502
Y GND
C GND
Y OUT
C OUT
VIDEO / RE HEAD
VIDEO HEAD (R2)
VIDEO HEAD (L2)
VIDEO HEAD (R1)
VIDEO HEAD (L1)
ROTARY ERASE HEAD
FE HEAD C.B.A. (VEP00H73B)
F E HEAD
EVF CONNECTOR UNIT
J1504 (TO EVF)
P1505
EVF 5V
GND
HD
VD
REC START
EVF OUT
TITLER
NOR REC DATA
(VEK3465)
LUMINANCE, CHROMINANCE & HEAD AMP SECTION
P3001
Y OUT
P8001
C OUT
P5001
R2S
R2F
L2S
L2F
H1F
H1S
L1S
L1F
R E (GND)
R EF (S)
SUB EMPHASIS C.B.A. (VEP03597A)
P5005
F E 9V
P3004
P3003
C IN
UNREG GND
UNREG 12V
CAMERA 9V
+16V
-8V
GND (VIDEO)
Y IN
CAMERA 5V
ZONE
REC DATA
VMD1
VMD2
TO PROCESS C B A
P3008
SW 5V
PB S VHS ⓗ
PB 5V
TO JUDGE
S-VHS ⓗ
4.43MHz
SERVO SECTION
MAIN C.B.A. (VEP03582A)
P8002
REC CHROMA IN
REC CHROMA OUT
PB CHROMA IN
PB CHROMA OUT
P3002
LINE Y IN
LINE C IN
VIDEO OUT
POWER SUPPLY SECTION
P1001
BATTERY
UNREG 12V
P1003
SUB VIDEO C.B.A. (VEP03583A)
P3802
P3803
14P REMOTE CONTROL C.B.A. (VEK3621)
J1503
EXT 12V
BATT 12V
LINE ⓘ
A LINE IN
CHARGE ⓘ
AUDIO OUT
VIDEO GND
AUDIO GND
S1504
NO
NC
J1501
REMOTE CONTROL JACK
P2002
P2001
⚠ CAPSTAN MOTOR
P1501
FG
9V
GND (FG)
⚠ CYLINDER MOTOR
PG 5V
P6502
+5V
POWER SW
COM
POWER LED
S-TAB SW
SHIFT SW
SET SW
REC LED
PAUSE LED
REW LED
INST LED
PLAY LED
FF LED
EJECT SW
OPERATION C.B.A. (VEP04452A)
S1502
P6501
SAFETY TAB
BATTERY CATCHER
P2003
CTL GND
CTL HEAD
P4003
A LINE IN
P4004
AUDIO OUT
AUDIO SECTION
P4002
AE HEAD
A HEAD (R)
A HEAD (P)
P4001
EARPHONE
MIC +B
P4005
MIC
MIC GND
P6012
DEW
DEW SENSOR
P6001
S-VHS SW
S1505
P6007
SENSOR LED
P6009
POS SCAN
POS 3
POS 2
POS 1
P6007
T REEL LED
T REEL SENS
P6003
P6006
SUPPLY PHOTO
C DOWN SW
S1503
CASSETTE DOWN SW
P6004
LOAD M.
M1501
LOADING MOTOR
⚠
P6005
TAKE UP PHOTO
P6013
BACK UP BATT
BACK UP BATTERY
SUB SYSTEM CONTROL C.B.A. (VEP08473A)
P6002
S-VHS LED
FADE SW
ST-BY LED
P6010
EXT ADP ⓗ
TARRY LED
REMOTE SW
SYSTEM CONTROL SECTION
A/C · AE HEAD
CTL HEAD
AUDIO ERASE HEAD
AUDIO HEAD
MICRO PHONE UNIT
P1506
MICRO PHONE
J1502
MICRO PHONE JACK
J1505
EARPHONE JACK
MIC FRAME GND
SENSOR LED C.B.A. (VXA3076)
D1501 LN59NV
MECHANISM CONNECTION C.B.A.
P1503
P1504
Q1503 ON2170
T REEL
(VES0413)
MODE SELECT SWITCH
S1501
Q1502 PN158NV
(VEK3415) SUPPLY PHOTO C.B.A.
Q1501 PN158NVMC
TAKE UP PHOTO C.B.A. (VEK3414)
START/STOP SW C.B.A (VEK3464)
START/STOP
P002
P003
P001
ONE SHOT AF
AF AUTO/MANU
AWT ⓗ
OUT DOOR ⓗ
BLC (IRIS)
FADE
BA306
CAMERA OPERATION C.B.A. (VEP08455C)
ZOOM SW
ZOOM T
ZOOM W
P1507
P304
ZOOM/SUB START /STOP SW C.B.A. (VEK3462)
TO PROCESS C B A
A
B
C
D
E
F
G
1
2
3
4
5
6
7
8
9
10

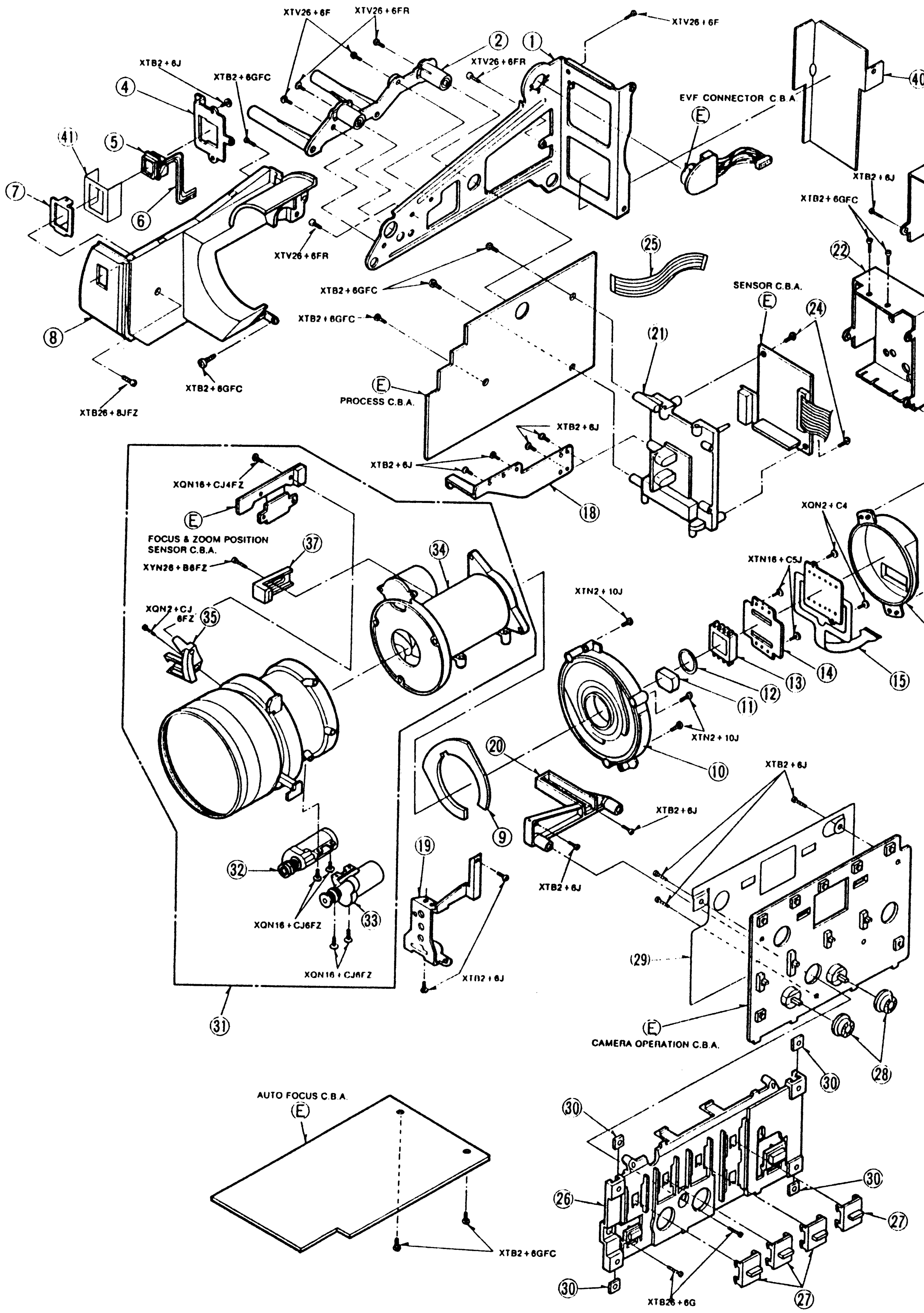
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

SECTION 4
EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEW

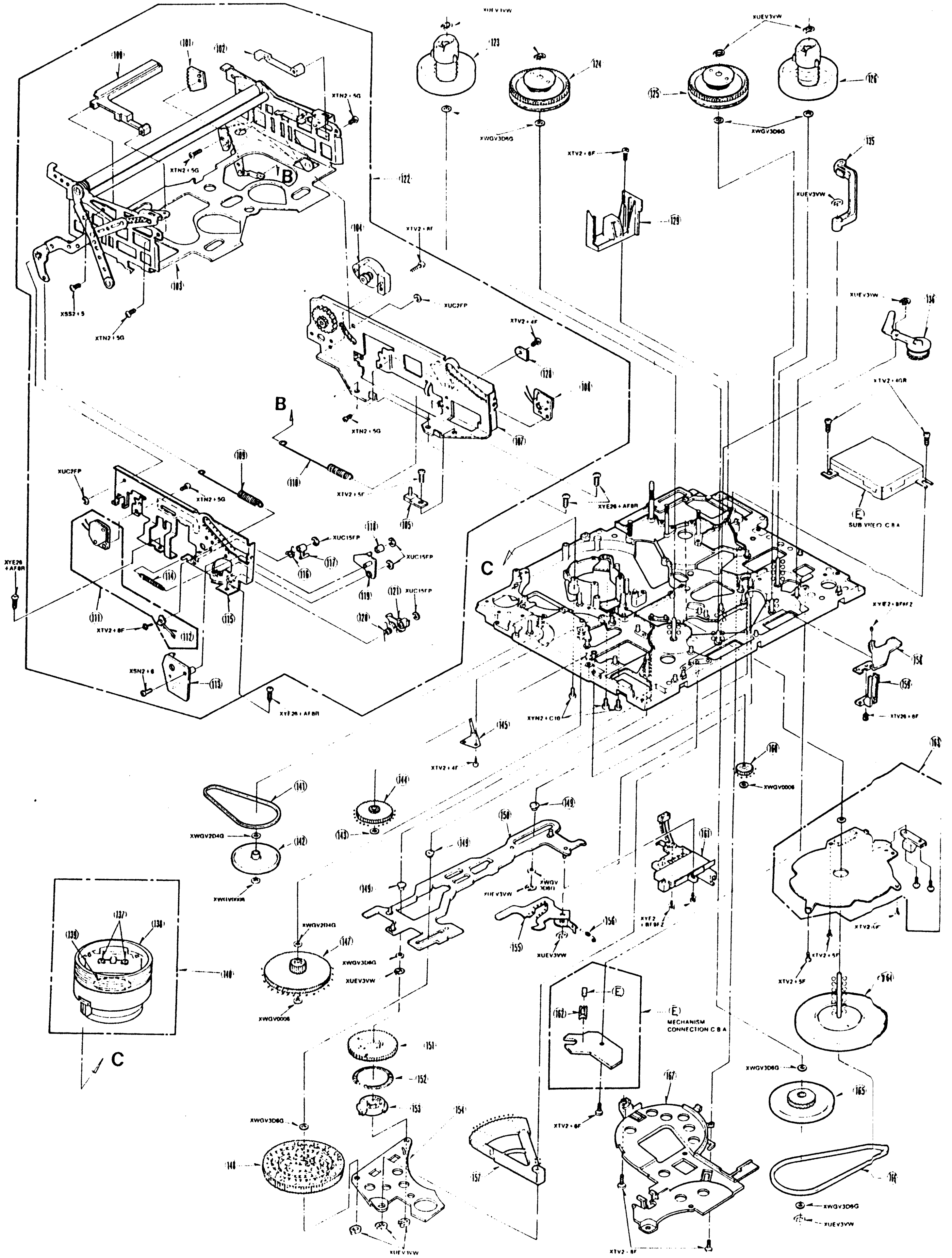
❶ CAMERA LENS SECTION



XTV26+6F
XTV26+6FR
②
①
XTV26+6FR
XTV26+6F
XTB2+6J
XTB2+6GFC
④
⑤
(41)
⑦
⑥
⑧
XTV26+6FR
XTB2+6GFC
XTB2+6GFC
XTB2+6GFC
XTB26+8JFZ
EVF CONNECTOR C.B.A.
Ⓔ
(40)
(23)
(25)
XTB2+6J
XTB2+6GFC
(22)
SENSOR C.B.A.
Ⓔ
(24)
(21)
XTB2+6J
Ⓔ
PROCESS C.B.A.
XTB2+6J
XTB2+6J
(18)
XTB2+6J
XQN16+CJ4FZ
Ⓔ
FOCUS & ZOOM POSITION SENSOR C.B.A.
(37)
XYN26+B6FZ
(34)
XQN2+CJ 6FZ
(35)
XQN2+C4
XTN16+C5J
(42)
XTB2+6J
XTN2+10J
⑯
⑮
⑭
⑬
⑫
⑪
XTN2+10J
⑩
⑳
⑨
XTB2+6J
XTB2+6J
⑲
(32)
XQN16+CJ6FZ
(33)
XQN16+CJ6FZ
XTB2+6J
XTB2+6J
(29)
Ⓔ
CAMERA OPERATION C.B.A.
(28)
(31)
AUTO FOCUS C.B.A.
Ⓔ
XTB2+6GFC
(30)
(30)
(26)
(30)
(27)
XTB26+6G
(27)
(30)

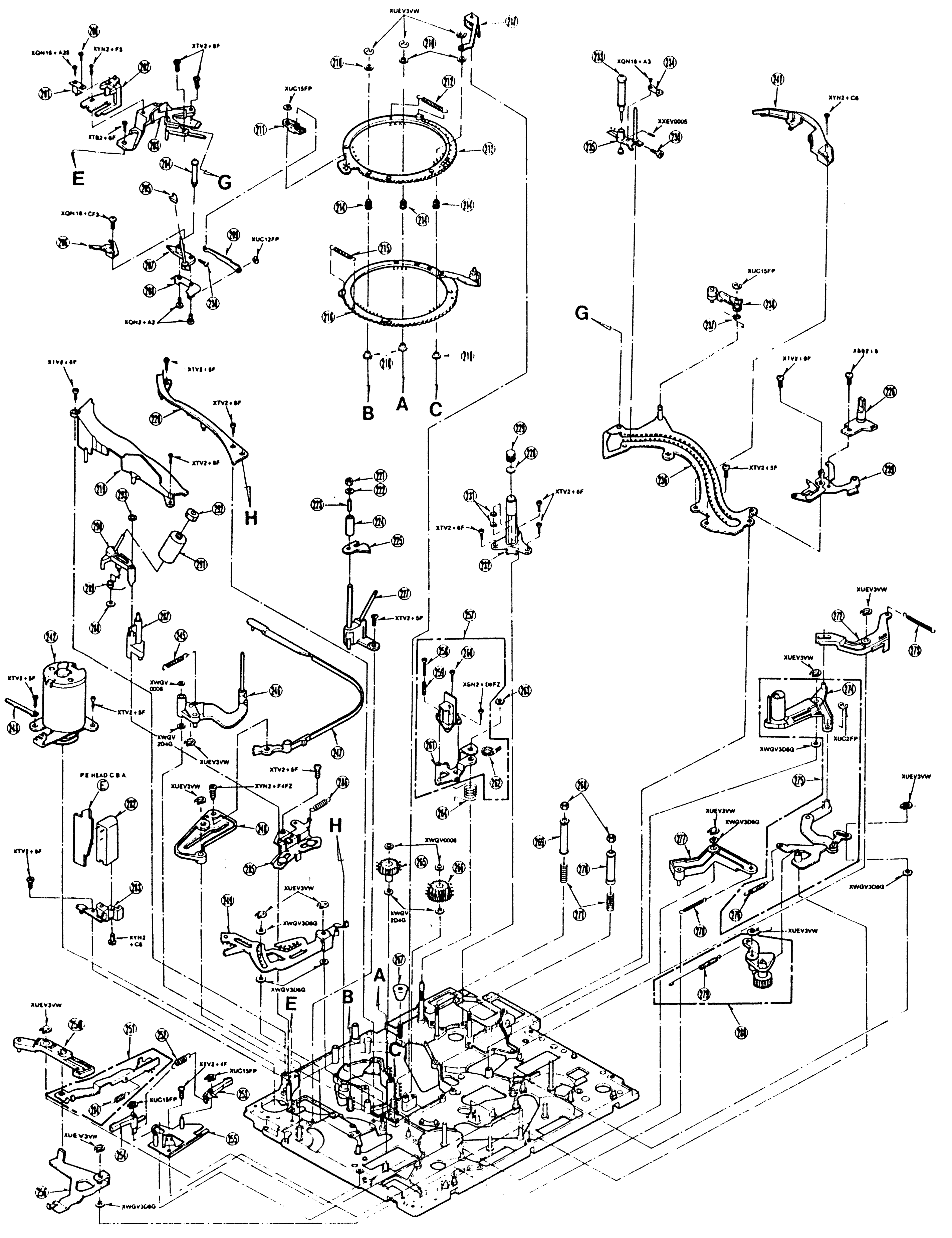
Back Page:
INTERCONNECTION Section

❷ VTR MECHANISM SECTION (1)



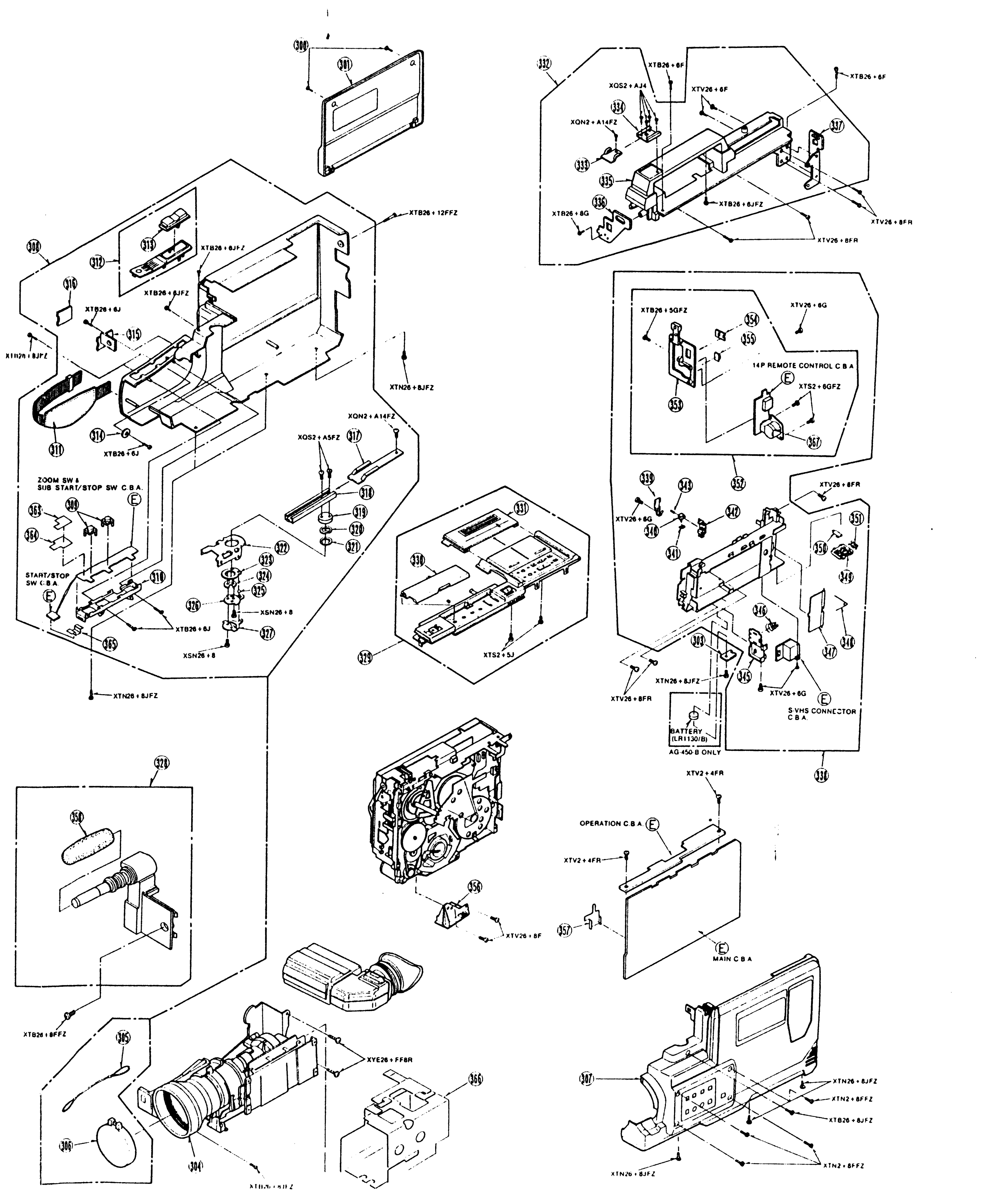
(100)
(101)
(102)
XTN2+5G
XTN2+5G
B
(103)
XSS2+5
XTN2+5G
XUEV1VW
(123)
(124)
XWGV3D6G
(122)
(104)
XTV2+8F
XUC2FP
XTV2+4F
(128)
(106)
(107)
XTN2+5G
B
XUEV3VW
(125)
(126)
XWGV3D6G
XTV2+6F
(129)
(135)
XUEV3VW
XUEV3VW
(136)
XTV2+4GR
Ⓔ
SUB VIDEO C.B.A.
(109)
(110)
XTV2+5F
(105)
XUC2FP
XTN2+5G
XYE26+AF8R
(114)
(111)
XTV2+8F
(112)
(115)
(116)
XUC15FP
(117)
(118)
XUC15FP
(119)
(121)
XUC15FP
(120)
XSN2+6
(113)
XYE26+AF8R
XYE26+AF8R
C
XYE2+BF6FZ
(158)
(159)
XTV26+8F
XYN2+C10
(145)
XTV2+4F
(160)
XWGV0006
(163)
(141)
XWGV2D4G
(142)
XWGV0006
(144)
(143)
(149)
(150)
(149)
(149)
XWGV3D6G
XUEV3VW
(155)
XUEV3VW
(156)
(161)
XYE2+BF6FZ
XTV2+5F
XTV2+5F
(164)
(137)
(138)
(139)
(140)
C
XWGV2D4G
(147)
XWGV3D6G
XUEV3VW
XWGV0006
(162)
Ⓔ
Ⓔ
MECHANISM CONNECTION C.B.A.
XTV2+8F
XWGV3D6G
(165)
(151)
(152)
(153)
(154)
XWGV3D6G
(148)
(157)
XUEV1VW
(167)
(166)
XWGV3D6G
XUEV3VW
XTV2+8F

❸ VTR MECHANISM SECTION (2)



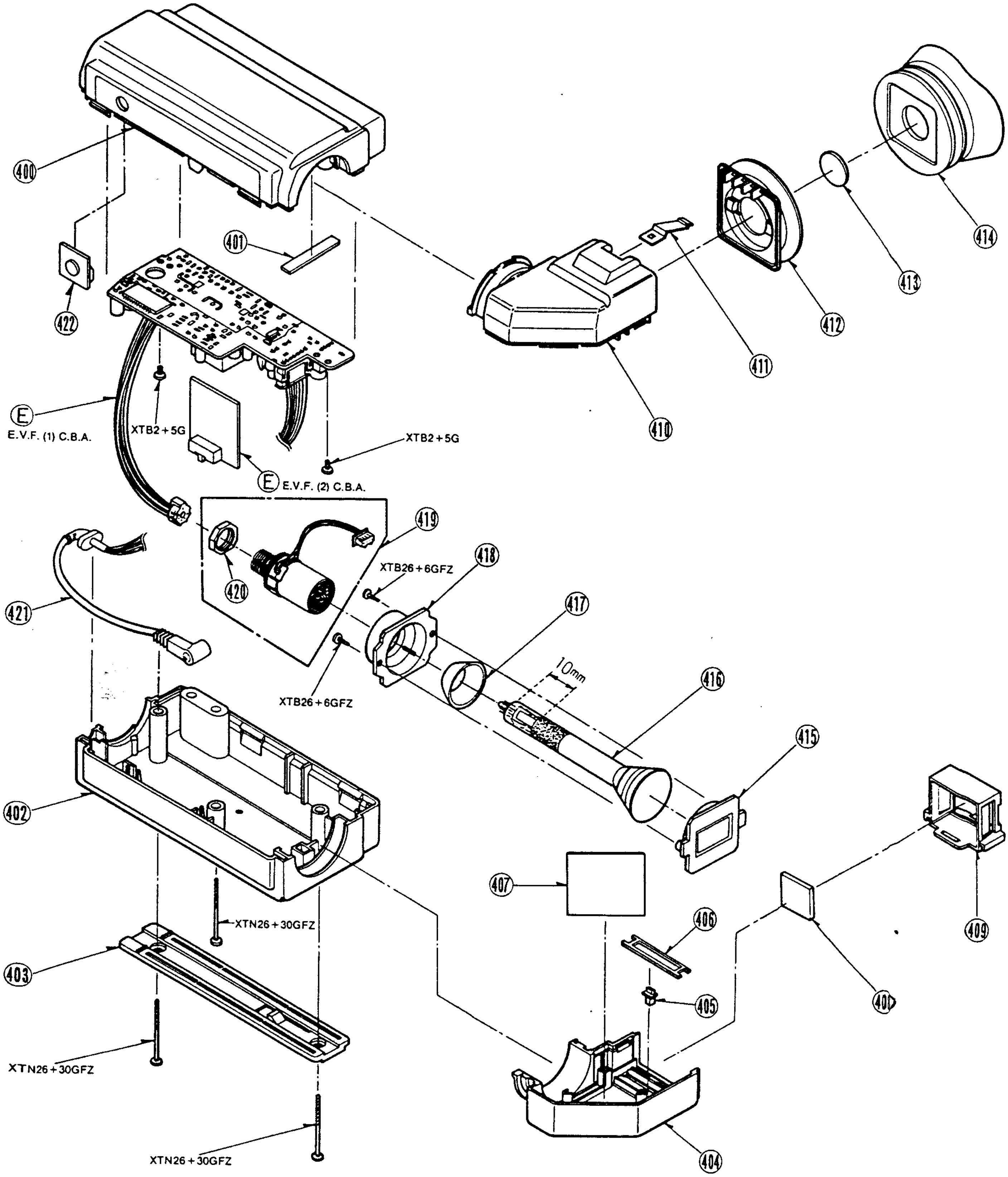
XUEV3VW
XQN16+A25
XTN2+F5
XTV2+6F
XUC15FP
XUC12FP
XQN16+CF5
XQN2+A2
XTB2+6F
E
G
H
A
B
C
XQN16+A3
XXEV0005
XTN2+C6
XTV2+6F
XSN2+D6FZ
XWGV0005
XWGV3D6G
XWGV2D4G
XUC2FP
XTN2+P4FZ
XTV2+4F
XUC15FP
PE HEAD C.B.A.
Ⓔ
XTN2+C6

❹ CHASSIS & FRAME SECTION

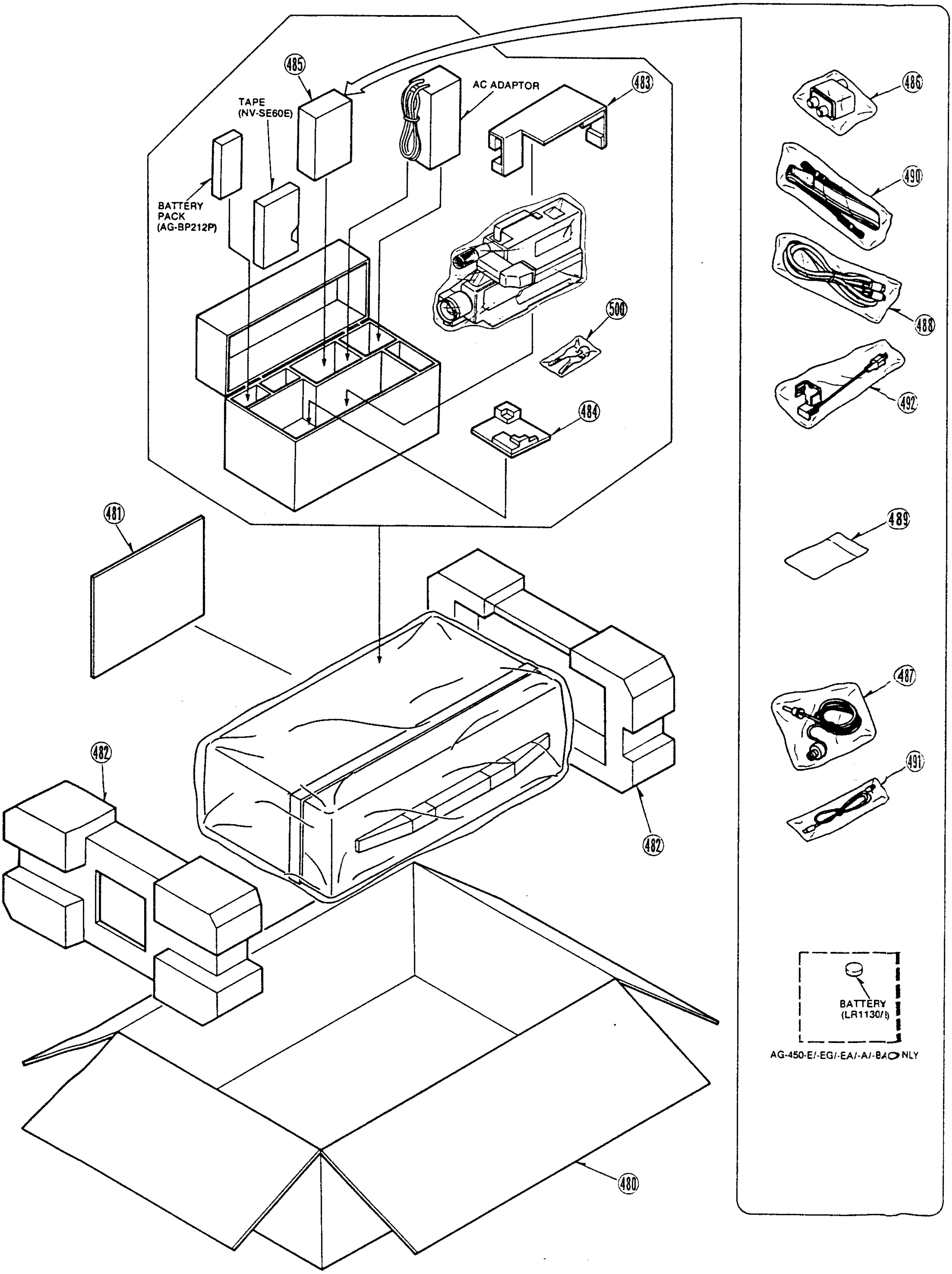


XTB26+12FFZ
XTB26+6JFZ
XTB26+6J
XTN26+8JFZ
XQN2+A14FZ
XQS2+A5FZ
ZOOM SW & SIIB START/STOP SW C.B.A.
START/STOP SW C.B.A.
Ⓔ
XSN26+8
XTS2+5J
XTB26+6F
XQS2+AJ4
XTV26+6F
XTB26+6G
XTV26+6FR
XTB26+5GFZ
XTV26+6G
14P REMOTE CONTROL C.B.A.
XTS2+6GFZ
S VHS CONNECTOR C.B.A.
BATTERY (LR1130/B)
AG 450-B ONLY
XTV2+4FR
OPERATION C.B.A.
MAIN C.B.A.
XTB26+8FFZ
XYE26+FF8R
XTN2+8FFZ

❺ E.V.F. SECTION


400
401
422
414
413
412
411
410
E
E.V.F. (1) C.B.A.
XTB2+5G
XTB2+5G
E
E.V.F. (2) C.B.A.
419
418
XTB26+6GFZ
420
421
417
10mm
XTB26+6GFZ
416
415
402
407
406
405
409
408
403
XTN26+30GFZ
XTN26+30GFZ
XTN26+30GFZ
404

❻ PACKING PARTS & ACCESSORIES SECTION


485
TAPE (NV-SE60E)
AC ADAPTOR
483
BATTERY PACK (AG-BP212P)
500
484
481
482
482
480
486
490
488
492
489
487
491
BATTERY (LR1130/1)
AG-450-E/-EG/-EA/-A/-BA ONLY

REPLACEMENT PARTS LIST

Notes:

1. • Be sure to make your orders of replacement parts according to this list.
   • "⟨R⟩" in Remark column indicates recommended parts.
   • "⟨M⟩" in Remark column indicates needed in the periodical maintenance.
2. IMPORTANT SAFETY NOTICE
   Components identified by " ! " have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
   Meaning of symbol ! on this parts list is exactly the same as symbol △ on Schematic and Circuit Board Diagrams.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), K=1,000Ω, M=1,000KΩ.
4. ITEM NUMBERS WITH CAPITAL LETTER E
   Item numbers with capital letter E (Example: E1, E2,...) in Ref. No. column mean that the parts are listed with the E item numbers in the exploded views.
5. The main assembled parts are shown below C.B.A. marked with "■".
6. When ordering parts, use part No. only from Part No. column.
7. Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

1. SERVICING FIXTURES & TOOLS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VFM8180HMDH	VHS Alignment Tape	1	
		VFK0329	Post Adj. Screwdriver	1	
		VFK0328	H-Position Adj. Fixture	1	
		VFK0343	Check Light	1	
		VFK0132	Back Tension Meter	1	
			(Tentelometer,		(T2-H7-UM)
			Made in U.S.A.)		
		VFK0191	Post Adj. Plate	1	
		VFK0133	Dial Torque Gauge	1	
		VFK0180	Plastic Clamper	1	
		VFK0134	Adaptor for VFK0133	1	
		VFK0190	Reel Table Height Gauge	1	
		VFK0157	Fine Adjustment Screwdriver	1	
			(2.5mm Phi)		
		VFK0380	18P Extension Cable	1	
		VFK0430	14P Extension Cable	1	
		VFK0335	Retaining Ring Remover	1	
			(3mm/4mm)		
		VFK0326	Hex.Wrench Set	1	
		MOR265	Morlytone Grease	1	
		VFK27	Head Cleaning Stick	1	
		VFK0382	Camera Holder	1	
		VFK0431	Camera Holder Arm	1	
		VFK0432	Holder Spacer	2	
		VFK0374	Color Temperature	1	
			Convesion Filter (C12)		
		VFK0375	Color Temperature	3	
			Convesion Filter (C2)		
		YWV2310RB99	Logarithmic Gray	1	
			Scale Chart		
		YWV2100RB98	Colour Chip Chart	1	
		YWV2100RB03	Ball & J Chart	1	

2. MECHANICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VMP1338	CAMERA ANGLE	1	
2(1)		VGQ1348	CAMERA ANGLE BOSS	1	
4(1)		VMP1607	AWT SENSOR ANGLE	1	
5(1)		VEK3435	AWT SENSOR	1	
6(1)		VWJ0293	AWT FLEXIBLE CABLE	1	
7(1)		VMP1105	AWT SENSOR HOOK	1	
8(1)		VKM1759	AWT SENSOR CASE	1	
9(1)		VMA7089	ACTUATER PLATE	1	
10(1)		VXQ0031	ACTUATER UNIT	1	
11(1)		VDL0173	CRYSTAL FILTER	1	
12(1)		VMX1274	CCD CUSION	1	
13(1)		MN3761F	CCD	1	
14(1)		VMA7183	CCD PLATE	1	
15(1)		VWJ0290	CCD FLEXIBLE CABLE	1	
16(1)		VJF0507	SENSOR FLAME	1	
18(1)		VMP1337	LENS ANGLE (A)	1	
19(1)		VMP1346	LENS ANGLE (B)	1	
20(1)		VJF0505	CAMERA OPERATION PANEL	1	
			ANGLE		
21(1)		VMD1118	SENSOR C.B.A. FLAME	1	
22(1)		VXA3573	SENSOR SHIELD CASE UNIT	1	
23(1)		VSC2329	SENSOR SHIELD HOLDER	1	
24(1)		VHD0398	SENSOR SETTING SCREW	2	
25(1)		VWJ0285	CAMERA-VTR FLEXIBLE CABLE	1	
26(1)		VGP1692	CAMERA OPERATION PANEL	1	
27(1)		VGU3896	SLIDE KNOB	4	
28(1)		VGU3898	VR KNOB	2	
29(1)		VMZ1113	CAMERA OPERATION BARRIER	1	
30(1)		VHN0057	CASE SETTING ANGLE (A)	4	
31(1)		VXW0016	LENS UNIT	1	
32(1)		VEM0309	FOCUS MOTOR UNIT	1	
33(1)		VEM0310	ZOOM MOTOR UNIT	1	
34(1)		VXL1747	IRIS UNIT	1	
35(1)		VJF0378	ENCODER C.B. HOLDER	1	
37(1)		VMD0933	BACK ADJUSTMENT	1	
40(1)		VSC2549	CAMERA HOLDER SHIELD	1	
			BARRIER		
41(1)		VGF0210	AWT SENSOR COVER	1	
42(1)		VMC0407	FRAME EARTH SPRING	1	
100(2)		VMD0954	CASSETTE GUIDE (L)	1	
101(2)		VDG0426	MAIN ARM GEAR (A)	1	VDG0670
102(2)		VMD0953	CASSETTE GUIDE (R)	1	
103(2)		VXA3022	CASSETTE HOLDER UNIT	1	
104(2)		VMD1130	DAMPER UNIT	1	
105(2)		VES0418	CASSETTE DISCRIMINATION	1	
			SWITCH UNIT		
107(2)		VXA3024	STAND (R) UNIT	1	
108(2)		VEK3414	PHOTO HOLDER (R) UNIT	1	
109(2)		VMB1329	HOLDER SPRING (L)	1	
110(2)		VMB1621	HOLDER SPRING (R)	1	
111(2)		VEK3415	PHOTO HOLDER (L) UNIT	1	
112(2)		VSH0026	LEAF SW	1	⟨R⟩
113(2)		VMD0952	LEAF SW COVER (O)	1	
114(2)		VMB1330	LOCK BOARD SPRING	1	
115(2)		VXA3023	STAND (L) UNIT	1	
116(2)		VMB1453	LOCK LEVER (B) SPRING	1	
117(2)		VML1650	LOCK LEVER (B)	1	
118(2)		VDP1096	LOCK ROLLER (O)	1	
119(2)		VXL1648	LOCK BOARD UNIT	1	
120(2)		VMB1331	LOCK LEVER (A) SPRING	1	
121(2)		VML1649	LOCK LEVER (A)	1	
122(2)		VXA3021	CASSETTE UP (4) UNIT	1	
123(2)		VXR0128	SUPPLY REEL TABLE	1	⟨M⟩⟨R⟩
124(2)		VXP0900	SUPPLY CLUTCH UNIT	1	
125(2)		VXP0901	TAKE-UP CLUTCH UNIT	1	
126(2)		VXR0171	TAKE-UP REEL TABLE	1	⟨M⟩⟨R⟩
128(2)		VSQ0493	DEW SENSOR UNIT	1	⟨R⟩
129(2)		VGQ0888	CASSETTE OPENER	1	
135(2)		VXZ0246	SOFT BRAKE (T) UNIT	1	⟨R⟩
136(2)		VXP0899	DRIVE GEAR ARM UNIT	1	
137(2)		VHD0288	CYLINDER UNIT SCREW	2	
138(2)		VEH0422	UPPER CYLINDER UNIT	1	⟨M⟩⟨R⟩
139(2)		VJR0347	RT TERMINAL	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
140(2)		VEG0674	CYLINDER UNIT	1	<!><M><R>
141(2)		VDV0167	LOADING BELT	1	<M><R>
142(2)		VDG0370	INTERMEDIATE PULLEY GEAR	1	
143(2)		VMX0653	CUT WASHER	1	
144(2)		VDG0372	DRIVE GEAR (B)	1	
145(2)		VXS0076	EARTH HOLDER UNIT	1	
147(2)		VDG0371	DRIVE GEAR (A)	1	
148(2)		VDG0202	CAM GEAR	1	
149(2)		VMX0388	THRUST WASHER	3	
150(2)		VXL1654	MAIN ROD (K) UNIT	1	
151(2)		VDG0211	LOADING GEAR (C)(2)	1	
152(2)		VMB1324	LOADING GEAR (C) SPRING	1	
153(2)		VDG0210	LOADING GEAR (C)(1)	1	
154(2)		VMA7228	GUARD PLATE	1	
155(2)		VML1707	DRIVE ARMKICK LEVER	1	
156(2)		VMB1388	DRIVE ARMKICK LEVER SPRING	1	
157(2)		VXP0632	SECTOR GEAR UNIT	1	
158(2)		VMA6560	SAFETY TAB SW BASE	1	
159(2)		VSH0023	SAFETY TAB SW	1	<R>
160(2)		VDG0207	DRIVE GEAR (C)	1	
161(2)		VSS0193	MODE SELECT SW	1	<R>
162(2)		VMX1280	SENSOR SPACER	1	
163(2)		VEK3398	STATOR UNIT	1	<!><R>
164(2)		VXP0634	ROTOR UNIT	1	<!><M><R>
165(2)		VXP0897	MAIN PULLEY UNIT	1	
166(2)		VDV0155	CAPSTAN BELT	1	<M><R>
167(2)		VMD0935	BELT COVER	1	
200(3)		VHD0282	P2 ADJUST PLATE SCREW	1	
201(3)		VMA6542	P2 ADJUST PLATE	1	
202(3)		VMD0701	SUPPLY POST STOPPER	1	
203(3)		VMD1144	V STOPPER BASE	1	
204(3)		VXP0841	SUPPLY ROLLER POST UNIT	1	
205(3)		VGQ0842	P2 CAP	1	
206(3)		VMD0769	TAPE PROTECTOR	1	
207(3)		VXA2221	SUPPLY SHAFT HOLDER(1)UNIT	1	
208(3)		VXA2256	SUPPLY SHAFT HOLDER ANGLE UNIT	1	
209(3)		VMM0144	CONNECTION ROD	1	
210(3)		VMX1282	RING GUIDE SLEEVE UNIT	3	
211(3)		VXA2231	CONNECTION TIE UNIT	1	
212(3)		VMB1319	LOADING SPRING	1	
213(3)		VXA2253	LOADING RING (S)(1) UNIT	1	
214(3)		VDP1160	RING GUIDE ROLLER	3	
215(3)		VMB1319	LOADING SPRING	1	
216(3)		VXA3576	LOADING RING (T)(O) UNIT	1	
217(3)		VMC0250	PRESSER SPRING	1	
218(3)		VMX1279	RING GUIDE SLEEVE	3	
219(3)		VMD1155	LOADING GUIDE (S)(1)	1	<M><R>
220(3)		VMD1128	LOADING GUIDE (S)(2)	1	<M><R>
221(3)		VMX1088	SUPPLY UPPER LIMITER	1	
222(3)		VMS2888	P1 SLEEVE (B)	1	
223(3)		VMX0876	P1 COLLAR	1	
224(3)		VDP1265	P1 ROLLER	1	
225(3)		VMA6547	P1 LIMITER PLATE	1	
226(3)		VXA3076	SENSOR LED(2) UNIT	1	
227(3)		VXA3112	P1 BASE (1) UNIT	1	
228(3)		VXD0098	THRUST SPACER	1	
229(3)		VHD0204	THRUST SCREW NUT	1	
230(3)		VHD0368	ROLLER POST SCREW	2	
231(3)		VMX0775	DUST SEAL	2	
232(3)		VXD0106	CAPSTAN HOUSING UNIT	1	
233(3)		VXP0927	ROLLER POST UNIT	1	
234(3)		VMA6546	TAKE-UP SHAFT HOLDER ANGLE	1	
235(3)		VXA2360	TAKE-UP SHAFT HOLDER (A) UNIT	1	
236(3)		VXA2257	LOADING GUIDE(T) UNIT	1	<M><R>
237(3)		VMB1393	PRESSURE LEVER SPRING	1	
238(3)		VXL1327	PRESSURE LEVER UNIT	1	
239(3)		VXA2540	SENSOR LED(1) UNIT	1	
241(3)		VMD0713	TAPE COVER(A)	1	
242(3)		VEM0288	LOADING MOTOR UNIT	1	<!><M><R>
243(3)		VJF0444	CLAMPER	1	
245(3)		VMB1747	TENSION SPRING	1	
246(3)		VXL1262	TENSION ARM UNIT	1	
247(3)		VXZ0245	TENSION BAND UNIT	1	<M><R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
248(3)		VML2065	BAND RELEASE ARM	1	
249(3)		VML1631	TENSION KICK LEVER	1	
250(3)		VML2064	EJECT LEVER (A)	1	
251(3)		VXA3020	SUPPORTER UNIT	1	
252(3)		VMB1405	BRAKE SPRING	1	
253(3)		VXZ0207	BRAKE (R) UNIT	1	<M><R>
254(3)		VXZ0206	BRAKE (L) UNIT	1	<M><R>
255(3)		VXA2392	BRAKE PLATE (1) UNIT	1	
256(3)		VML2073	EJECT LEVER (B)	1	
257(3)		VED0041	A/C HEAD UNIT	1	<M><R>
258(3)		VHD0275	A/C HEAD ADJUST SCREW	1	
259(3)		VMB1321	A/C HEAD ADJUST SPRING	1	
260(3)		VHD0381	A/C HEAD TILT ADJUST SCREW	1	
261(3)		VML1637	A/C HEAD ARM	1	
262(3)		VJF0300	A/C HEAD BINDER	1	
263(3)		VHN0077	A/C HEAD ARM NUT	1	
264(3)		VMB1320	A/C HEAD SPRING	1	
265(3)		VDG0208	LOADING GEAR (A)	1	
266(3)		VDG0461	LOADING GEAR (B)	1	
267(3)		VHN0072	ADJUST NUT	1	
268(3)		VHN0047	M2 NYLON NUT	2	
269(3)		VMS2693	P4 POST SLEEVE	1	
270(3)		VXJ0057	P5 POST SLEEVE	1	
271(3)		VMB1322	P4,P5 SPRING	2	
272(3)		VML2067	PINCH LEVER	1	
273(3)		VMB1748	PINCH LEVER SPRING	1	
274(3)		VXL1652	PINCH ROLLER ARM(1)UNIT	1	<M><R>
275(3)		VXL1650	PINCH ARM UNIT	1	
276(3)		VMB1326	PINCH ARM SPRING	1	
277(3)		VXL1264	SOFT BRAKE LEVER (S) UNIT	1	
278(3)		VMB1314	SOFT BRAKE SPRING (S)	1	
279(3)		VMB1473	REW ARM SPRING (A)	1	
280(3)		VXL1649	FF/REW ARM UNIT	1	
282(3)		VBS0021	FE HEAD	1	<M><R>
283(3)		VMD1129	FE HEAD BASE	1	
284(3)		VMB1447	SUPPORTER SPRING	1	
285(3)		VXA3579	SLIDE BASE (O) UNIT	1	
286(3)		VMB1965	SLIDE SPRING	1	
287(3)		VML2285	IMPEDANCE LEVER	1	
288(3)		VHN0109	PUSH UNIT	1	
289(3)		VMB1964	IMPEDANCE DRIVE SPRING	1	
290(3)		VXL1879	IMPEDANCE ARM (1) UNIT	1	
291(3)		VDP1266	IMPEDANCE ROLLER	1	
292(3)		VMX1088	SUPPLY UPPER LIMITER	1	
293(3)		VMX0967	CUT WASHER	1	
300(4)		VHD0371	CASSETTE COVER SCREW	2	
301(4)		VYP2640	CASSETTE COVER UNIT	1	<R>
303(4)		VKF0960	BATTERY LID	1	
304(4)		VDW0085	LENS HOOD	1	<R>
305(4)		VGQ1350	HOOD STRAP	1	<R>
306(4)		VKF0950	HOOD CAP	1	<R>
307(4)		VYK2493	SIDE CASE(R) UNIT	1	<R>
308(4)		VYK2494	SIDE CASE(L) UNIT	1	<R>
309(4)		VMG0358	SWITCH RUBBER PIECE	2	<R>
310(4)		VMP1382	ZOOM BUTTON ANGLE	1	
311(4)		VYC0318	GLIP BELT	1	
312(4)		VXU0835	ZOOM BUTTON UNIT	1	
313(4)		VGU3903	ZOOM BUTTON	1	<R>
314(4)		VMA6402	GRIP BELT ANGLE	1	
315(4)		VXU0836	START/STOP BUTTON UNIT	1	<R>
316(4)		VGQ1351	GRIP SHEET	1	
317(4)		VMC0257	EVF SHOE SPRING	1	
318(4)		VMP1073	EVF SHOE	1	
319(4)		VMP1072	EVF ROTATION STAND	1	
320(4)		WW-12	WAVING WASHER	1	
321(4)		VMX1123	EVF ROTATION SPACER	1	
322(4)		VMP1341	EVF ANGLE	1	
323(4)		VGQ1213	EVF ROTATION PIECE(A)	1	
324(4)		VGQ1214	EVF ROTATION PIECE(B)	1	
325(4)		VDB0876	EVF CLICK BELL	1	
326(4)		VMC0277	EVF CLICK SPRING (A)	1	
327(4)		VMC0278	EVF CLICK SPRING (B)	1	
328(4)		VEK3965	MIC UNIT	1	<R>

VXUO 420 - Grey.

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
329(4)		VXU0861	OPERATION PANEL UNIT Sch.	1	<R>
330(4)		VKF1147	RESET/MEMORY DOOR	1	<R>
331(4)		VKF1070	CURSOR	1	
332(4)		VXK0847	TOP PANEL UNIT	1	<R>
333(4)		VMC0241	SHOE SPRING	1	
334(4)		VMP1079	SHOE	1	
335(4)		VKM1058	HANDLE TOP CASE	1	<R>
336(4)		VMP1342	SHOULDER BELT ANGLE(FRONT)	1	
337(4)		VMP1343	SHOULDER BELT ANGLE(REAR)	1	
338(4)		VYK2311	BATTERY CASE UNIT	1	
339(4)		VMC0238	BATTERY STOPPER FIXING	1	
			ANGLE	1	
340(4)		VGQ1122	BATTERY STOPPER	1	
341(4)		VGQ1181	BATTERY STOPPER PIECE	1	
342(4)		VGU3906	BATTERY EJECT BUTTON	1	
343(4)		VMB1610	BATTERY EJECT SPRING	1	
345(4)		VGQ1129	BATTERY CATCHER	1	
346(4)		VMB1614	BATTERY STOPPER SPRING	1	
347(4)		VKF0831	BATTERY DOOR	1	
348(4)		VMC0356	BATTERY DOOR SPRING	1	
349(4)		VJF0539	BATTERY FIXING PIECE	1	
350(4)		VMC0326	ELECTRODE(-)	1	
351(4)		VJR0363	ELECTRODE(+)	1	
352(4)		VEJ0752	JACK PLATE UNIT	1	
353(4)		VKM1092	JACK PLATE CASE	1	
354(4)		VGH1386	JACK NAME PLATE	1	
355(4)		VGU3902	EDIT KNOB	1	<R>
356(4)		VYQ0096	TRIPOD FIXING BRACKET UNIT	1	
357(4)		VSC2661	SHIELD CASE(LID)	1	
358(4)		VGQ1567	FOOD	1	
363(4)		VMZ1244	ZOOM C.B.A. BARRIER	1	
364(4)		VMX1351	ZOOM C.B.A. SPACER BARRIER	1	
365(4)		VMZ1248	START/STOP C.B.A. BARRIER	1	
366(4)		VSC2667	SHIELD BARRIER	1	
367(4)		VSC2631	14P SHIELD PLATE	1	
400(5)		VKM1758	EVF TOP COVER	1	<R>
401(5)		VMC0317	EVF ROTATION SPRING	1	
402(5)		VKM1584	EVF BOTTOM COVER	1	<R>
403(5)		VGQ1330	EVF FOOD	1	
404(5)		VKM1055	CRT BOTTOM CASE	1	
405(5)		VGU3895	EYESIGHT CORRECTION KNOB	1	
406(5)		VJF0502	KNOB PRESSURE SHEET	1	
407(5)		VDL0141	MIRROR	1	<R>
408(5)		VDL0139	EYESIGHT CORRECTION LENS	1	<R>
409(5)		VKF0947	LENNS HOLDER	1	
410(5)		VKM1054	CRT TOP CASE	1	
411(5)		VMC0316	EYE CAP HOLDER SPRING	1	
412(5)		VKF0946	EYE CAP HOLDER	1	<R>
413(5)		VDL0140	EYE CAP LENS	1	<R>
414(5)		VMG0411	EYE CAP	1	<R>
415(5)		VJF0500	CRT MASKING	1	
416(5)		M02JVV48WB	CRT	1	<!><R>
417(5)		VMX1004	CRT PROTECTOR RUBBER	1	
418(5)		VJF0501	CRT HOLDER	1	
419(5)		ELY07V552A	DEFLECTION YOKE	1	<!><R>
420(5)		VHN0093	HOLDER RING	1	
421(5)		VEK3604	EVF CABLE UNIT	1	<R>
422(5)		VGL0320	LED PANEL LIGHT	1	
480(6)		VPG4588	PACKING CASE	1	<R> AG-450B
480(6)		VPG4589	PACKING CASE	1	<R> AG-450EG
480(6)		VPG4590	PACKING CASE	1	<R> AG-450E
480(6)		VPG4591	PACKING CASE	1	<R> AG-450A
480(6)		VPG4592	PACKING CASE	1	<R> AG-450EA
480(6)		VPG4593	PACKING CASE	1	<R> AG-450BA
481(6)		VQT2997	OPERATING INSTRUCTIONS	1	<R><!> AG-450B
481(6)		VQT2998	OPERATING INSTRUCTIONS	1	<R><!> AG-450E/EG
481(6)		VQT2999	OPERATING INSTRUCTIONS	1	<R><!> AG-450EA/BA/
482(6)		VPN2089	CUSHION	2	
483(6)		VPN2309	PAD (D)	1	
484(6)		VPN2240	PAD (B)	1	
485(6)		VPK0940	ACCESSORY PACKING	1	AG-450B
485(6)		VPK0952	ACCESSORY PACKING	1	AG-450E/EG/A/BA/EA
486(6)		VSQ0541	AV CONNECTOR	1	
487(6)		VBE0006	EARPHONE	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
488(6)		VJA0453	4P CORD	1	
489(6)		VFC0126	LENS CLEANER	1	
490(6)		VFC0130	SHOULDER STRAP	1	
491(6)		VJA0321	DIN CABLE	1	
492(6)		VJA0180	RECHARGEABLE BATTERY	1	
			CATCHER		
500(6)		VYQ0101	KEY	1	<R>

3. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			CAMERA SECTION		
		VEP23080A	PROCESS C.B.A.	1	(NLA)<R>
					INCLUDING THE
					ENCODER C.B.A.
					(VEP23060C).
		VEP23060C	ENCODER C.B.A.	1	(NLA)<R>
					INCLUDED IN PROCESS
					C.B.A.(VEP23080A).
		VEP28014C	AUTO FOCUS C.B.A.	1	(NLA)<R>
		VEP22076A	SENSOR C.B.A.	1	(NLA)<R>
		VEP06455C	CAMERA OPERATION C.B.A.	1	(NLA)<R>
		VEP20242A	FOCUS & ZOOM POSITION	1	(NLA)<R>
			SENSOR C.B.A.		
			E.V.F. SECTION		
		VEP27033E	EVF (1) C.B.A.	1	(NLA)<R>
		VEP27037A	EVF (2) C.B.A.	1	(NLA)<R>
			VTR SECTION		
		VEP03582A	MAIN C.B.A.	1	(NLA)<R>
					INCLUDING THE
					SUB EMPHASIS C.B.A.
					(VEP03597A).
		VEP03597A	SUB EMPHASIS C.B.A.	1	(NLA)<R>
					INCLUDED IN MAIN
					C.B.A.(VEP03582A).
		VEP03583A	SUB VIDEO C.B.A.	1	(NLA)<R>
		VEP06452A	OPERATION C.B.A.	1	(NLA)<R>
		VEK3463	S-VHS CONNECTOR C.B.A.	1	(NLA)<R>
		VEK3464	START/STOP SW C.B.A.	1	(NLA)<R>
		VEK3462	ZOOM & SUB START/STOP SW	1	(NLA)<R>
			C.B.A.		
		VEK3465	E.V.F. CONNECTOR C.B.A.	1	(NLA)<R>
		VEP00H73B	FE HEAD C.B.A.	1	(NLA)<R>
		VXA3076	SENSOR LED C.B.A.	1	(NLA)<R>
		VEK3415	SUPPLY PHOTO C.B.A.	1	(NLA)<R>
		VEK3414	TAKE-UP PHOTO C.B.A.	1	(NLA)<R>
		VEK3621	14P REMOTE CONTROL C.B.A.	1	(NLA)<R>
		VES0413	MECHANISM CONNECTION C.B.A.	1	(NLA)<R>
	■	VEP23080A	PROCESS C.B.A.		INCLUDING THE
					ENCODER C.B.A.
					(VEP23060C).

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
B301		VJS2227	CONNECTOR	1	
B302		VJS1948	CONNECTOR	1	
			CAPACITORS		
C101-03		ECEA0JKS470	E.CAPACITOR 6.3V 47U	3	
C104-06		ECUM1E473ZFN	CHIP 25V 0.047U	3	
C107,08		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C109		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C110		ECEA0JKS330	E.CAPACITOR 6.3V 33U	1	
C111		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C112		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C113,14		ECUM1E104ZFN	CHIP 25V 0.1U	2	
C115-17		ECUM1H821KBV	CHIP 50V 820P	3	
C118		ECEA1AKK100	E.CAPACITOR 10V 10U	1	
C119,20		ECEA1ASN100	E.CAPACITOR 10V 10U	2	
C122		ECUM1H101JCV	CHIP 50V 100P	1	
C123		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C124		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C125		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C126		ECUM1H102KBV	CHIP 50V 1000P	1	
C127		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C301		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C303		ECSF1CE105	T.CAPACITOR 16V 1U	1	
C304		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C305		ECEA1CSN4R7	E.CAPACITOR 16V 4.7U	1	
C306		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C307		ECEA1VSN2R2	E.CAPACITOR 35V 2.2U	1	
C308		ECUM1H102KBV	CHIP 50V 1000P	1	
C309		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C310,11		ECUM1E104ZFN	CHIP 25V 0.1U	2	
C312		ECUM1H561KBN	CHIP 50V 560P	1	
C313		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C314		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C315		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C316		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C319,20		ECUM1E473ZFN	CHIP 25V 0.047U	2	
C321,22		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C323,24		ECUM1E473ZFN	CHIP 25V 0.047U	2	
C325		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C326		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C327		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C328		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C329		ECSF1AE226	T.CAPACITOR 10V 22U	1	
C330		ECSF0JE476	TANTALUM 6.3V 47U	1	
C331		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C335-38		ECUM1E104ZFN	CHIP 25V 0.1U	4	
C340		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C341		ECEA1EKS100	E.CAPACITOR 25V 10U	1	
C342		ECSF1AE476	T.CAPACITOR 10V 47U	1	
C344		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C345		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C346		ECUM1H331KBV	CHIP 50V 330P	1	
C347		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C351		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C353		ECSF1AE106	T.CAPACITOR 10V 10U	1	
C354		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C355		ECST1AY225Z	T.CAPACITOR 10V 2.2U	1	
C356-59		ECUM1E104ZFN	CHIP 25V 0.1U	4	
C360		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C361		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C362		ECUM1H101JCV	CHIP 50V 100P	1	
C363		ECUM1H151JCV	CHIP 50V 150P	1	
C364		ECUM1H150JCV	CHIP 50V 15P	1	
C365		ECSF1CE225	T.CAPACITOR 16V 2.2U	1	
C366		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C370		ECUM1H102KBV	CHIP 50V 1000P	1	
C371,72		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C373		ECUM1H101JCV	CHIP 50V 100P	1	
C379		ECUM1H101JCV	CHIP 50V 100P	1	
C382		ECUM1H101JCV	CHIP 50V 100P	1	
C383		ECUM1H681KBV	CHIP 50V 680P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C390		ECUM1H102KBV	CHIP 50V 1000P	1	
C391		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C901		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C904		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C905		ECUM1H330JCV	CHIP 50V 33P	1	
C906,07		ECUM1H102KBV	CHIP 50V 1000P	2	
C908		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C909		ECST1AC106Z	T.CAPACITOR 10V 10U	1	
C910		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C911		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C912		ECUM1H103ZFN	CHIP 50V 0.01U	1	
D101		MA713	DIODE	1	<R>
D102		MA728	DIODE	1	<R>
D104		MA728	DIODE	1	<R>
D105		MA713	DIODE	1	<R>
D302		MA3047M	DIODE	1	<R>
D303		MA728	DIODE	1	<R>
D304		MA141K	DIODE	1	<R>
D305		MA141WK	DIODE	1	<R>
D306		MA141K	DIODE	1	<R>
D308		MA110	DIODE	1	<R>
FL301		ELB5B018	FILTER	1	
FL303,04		ELB4A011	FILTER	2	
FL305		VLF0607	FILTER	1	
FL306		ELB4E001	FILTER	1	
FL307		ELB4A003	FILTER	1	
FL308		ELB4B016	FILTER	1	
FL309		ELB4B002	FILTER	1	
FL311		ELB4B002	FILTER	1	
FP101		VJS2282	CONNECTOR	1	
FP301		VJS2137	CONNECTOR	1	
IC101		LM2902M	IC	1	<R>
IC102		AN1324NS	IC	1	<R>
IC103,04		AN1358S	IC	2	<R>
IC105		NJM3415M	IC	1	<R>
IC106		AN1358S	IC	1	<R>
IC301-03		AN1358S	IC	3	<R>
IC304		AN2153S	IC	1	<R>
IC305		MN4052BS	IC	1	<R>
IC306		LM2902M	IC	1	<R>
IC307		UPD9313GB	IC	1	<R>
IC308		VCR0256	IC	1	<R>
IC309		MC8181A	IC	1	<R>
IC310		VCR0255	IC	1	<R>
IC901		AN2253FA	IC	1	<R>
L301.02		VLQ0163K150	COIL 15UH	2	
L303.04		ELJFA150K	COIL 15H	2	
L306		VLQ0163K330	COIL 33UH	1	
L307		VLQ0163K180	COIL 18UH	1	
L308		ELJFA150K	COIL 15H	1	
L311		ELJFA150K	COIL 15H	1	
L312		ELJFA5R6KF	COIL 5.6H	1	
L313		ELJFA150K	COIL 15H	1	
L314		VLQ0163K150	COIL 15UH	1	
L315		VLQ0291	COIL	1	
L901		VLQ0163K330	COIL 33UH	1	
P301		VJP1597R	CONNECTOR(MALE) 4P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
P303		VJP1595T	CONNECTOR(MALE) 2P	1	
P305		VJP1595T	CONNECTOR(MALE) 2P	1	
PK901,02		VJR0367	PACK PIN	2	
Q301-03		2SD1819	TRANSISTOR	3	<R>
Q304-06		2SB1218	TRANSISTOR	3	<R>
Q307		2SD1819	TRANSISTOR	1	<R>
Q308		2SB1218	TRANSISTOR	1	<R>
Q311		2SD1819	TRANSISTOR	1	<R>
Q314,15		2SD1819	TRANSISTOR	2	<R>
Q316		2SC3931	TRANSISTOR	1	<R>
Q318		2SB1218	TRANSISTOR	1	<R>
Q319		2SB1219	TRANSISTOR	1	<R>
Q320.21		2SD1819	TRANSISTOR	2	<R>
Q322		2SB1219	TRANSISTOR	1	<R>
Q323		2SD874	TRANSISTOR	1	<R>
Q324,25		2SD1819	TRANSISTOR	2	<R>
Q327		2SD1819	TRANSISTOR	1	<R>
Q328		2SC3931	TRANSISTOR	1	<R>
Q329,30		2SD1819	TRANSISTOR	2	<R>
Q331		2SB970	TRANSISTOR	1	<R>
Q332		2SD1819	TRANSISTOR	1	<R>
Q333		2SC3931	TRANSISTOR	1	<R>
Q334,35		2SA1610	TRANSISTOR	2	<R>
Q336		2SD1819	TRANSISTOR	1	<R>
Q339		2SD1819	TRANSISTOR	1	<R>
Q340		2SK316	TRANSISTOR	1	<R>
Q343		2SK316	TRANSISTOR	1	<R>
Q344		2SB1218	TRANSISTOR	1	<R>
Q345		2SD1819	TRANSISTOR	1	<R>
Q346,47		2SB1218	TRANSISTOR	2	<R>
Q348		2SK316	TRANSISTOR	1	<R>
Q352		2SK316	TRANSISTOR	1	<R>
Q353		2SC3931	TRANSISTOR	1	<R>
Q901		2SA1532	TRANSISTOR	1	<R>
Q902		2SB1218	TRANSISTOR	1	<R>
			COMBINATION PARTS		
			(TRANSISTOR & RESISTORS)		
QR302		UN5215	COMBI.PARTS	1	<R>
			RESISTORS		
R101.02		ERJ3GEYJ561	CHIP 1/20W 560	2	
R103		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R104		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R105		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R106		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R107		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R109		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R110-13		ERJ3GEYJ333	CHIP 1/20W 33K	4	
R114		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R116		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R117		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R118		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R119		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R120		ERJ3GEYJ470	CHIP 1/20W 47	1	
R121		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R122		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R123		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R124-26		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R127-30		ERJ3GEYJ104	CHIP 1/20W 100K	4	
R134		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R136		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R137		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R138		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R139		ERJ3GEYJ183	CHIP 1/20W 18K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R140		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R141		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R142		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R143		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R144		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R145,46		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R147		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R148		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R149		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R150-52		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R157		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R158		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R161		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R162		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R165		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R166		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R168		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R170		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R171		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R172		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R173		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R174		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R175		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R302		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R304		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R306		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R307		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R308		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R310		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R311		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R312		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R313		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R314		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R315		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R316		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R317		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R318		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R319-22		ERJ3GEYJ103	CHIP 1/20W 10K	4	
R323		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R324,25		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R326		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R327		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R328		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R329		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R330		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R331		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R332		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R333		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R334		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R335		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R336		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R337		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R338		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R339,40		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R341		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R342,43		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R344		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R345		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R346		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R347		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R348		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R349		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R350		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R351-53		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R354		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R355		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R356		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R357		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R358,59		ERJ3GEYJ153	CHIP 1/20W 15K	2	
R362		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R363		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R366-68		ERJ3GEYJ273	CHIP 1/20W 27K	3	
R371		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R372		ERJ6GEYK106	CHIP 1/10W 10M	1	
R373		ERJ3GEYJ563	CHIP 1/20W 56K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R374		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R375		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R376		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R377		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R378		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R379		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R380		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R381,82		ERJ3GEYJ563	CHIP 1/20W 56K	2	
R383		ERJ6GEYK106	CHIP 1/10W 10M	1	
R384		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R385		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R386		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R387		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R388		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R389		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R390		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R391		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R392		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R393		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R394,95		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R396		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R397		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R398		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R399		ERJ3GEYJ181	CHIP 1/20W 180	1	
R401		ERJ3GEYJ681	CHIP 1/20W 680	1	
R402		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R404		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R405		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R406		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R407,08		ERJ6GEYF561	CHIP 1/10W 560	2	
R409		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R411		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R412		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R413		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R415,16		ERJ6GEYF472	CHIP 1/10W 4.7K	2	
R417		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R418		ERJ3GEYG682	CHIP 1/20W 6.8K	1	
R419		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R420,21		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R422		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R423,24		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R425		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R426		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R428		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R429		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R430		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R431		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R432,33		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R434		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R435		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R436		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R437		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R438		ERJ3GEYJ561	CHIP 1/20W 560	1	
R439		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R440		ERJ3GEYJ331	CHIP 1/20W 330	1	
R441		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R442		ERJ3GEYJ391	CHIP 1/20W 390	1	
R443,44		ERJ3GEYJ222	CHIP 1/20W 2.2K	2	
R445		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R446		ERJ3GEYJ271	CHIP 1/20W 270	1	
R447-49		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R450		ERJ3GEYJ561	CHIP 1/20W 560	1	
R451		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R455		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R456		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R457		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R458		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R459		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R460		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R461		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R462		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R466,67		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R468		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R469		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R471		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R472		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R473		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R474		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R475		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R476		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R477		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R478		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R479		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R480		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R481		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R482		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R483		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R485		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R486-89		ERJ3GEYJ102	CHIP 1/20W 1K	4	
R495		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R496		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R498		ERJ3GEYJ561	CHIP 1/20W 560	1	
R499		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R901		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R902		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R905		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R906		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R907		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R908		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R909,10		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R911		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R912		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R913		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R914		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R915		ERJ3GEYJ560	CHIP 1/20W 56	1	
R916		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R917		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R918		ERJ3GEYG112	CHIP 1/20W 1.1K	1	
R919		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R920		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R921		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R922		ERJ3GEYJ273	CHIP 1/20W 27K	1	
TH101-04		VRE0023	THERMISTOR	4	<R>
VR101,02		EVM7YSW00B14	V.RESISTOR 10K	2	
VR103		EVM7YSW00B54	V.RESISTOR 50K	1	
VR104		EVM7YSW00B25	V.RESISTOR 200K	1	
VR105		EVM7YSX00B14	V.RESISTOR 10K	1	
VR106		EVM7YSW00B14	V.RESISTOR 10K	1	
VR107		EVM7YSW00B24	V.RESISTOR 20K	1	
VR301		EVM7YSW00B14	V.RESISTOR 10K	1	
VR302		EVM7YSX00B13	V.RESISTOR 1K	1	
VR303		EVM7YSX00B14	V.RESISTOR 10K	1	
VR304		EVM7YSW00B13	V.RESISTOR 1K	1	
VR305		EVM7YSW00B53	V.RESISTOR 5K	1	
VR306		EVM7YSX00B14	V.RESISTOR 10K	1	
VR308		EVM7YSW00B55	V.RESISTOR 500K	1	
VR312		EVM7YSW00B14	V.RESISTOR 10K	1	
VR313		EVM7YSX00B14	V.RESISTOR 10K	1	
VR314,15		EVM7YSX00B54	V.RESISTOR 50K	2	
VR316,17		EVM7YSX00B23	V.RESISTOR 2K	2	
VR318,19		EVM7YSX00B24	V.RESISTOR 20K	2	
VR322-24		EVM7YSW00B14	V.RESISTOR 10K	3	
VR325		EVM7YSW00B34	V.RESISTOR 30K	1	
VR326		EVM7YSX00B24	V.RESISTOR 20K	1	
			MISCELLANEOUS		
		VSC2247	DELAY LINE SHIELD CASE	1	
		VXA3369	SYNC SHIELD PLATE UNIT	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
	■	VEP28014C	AUTO FOCUS C.B.A.		
B601		VJP2227	CONNECTOR (MALE)	1	
			CAPACITORS		
C601		ECEA0JU471	E.CAPACITOR 6.3V 470U	1	
C602		ECUM1H270JCV	CHIP 50V 27P	1	
C603,04		ECUM1H330JCV	CHIP 50V 33P	2	
C605-07		ECUM1H103ZFV	CHIP 50V 0.01U	3	
C608-11		ECUM1H101JCV	CHIP 50V 100P	4	
C612		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C613,14		ECUM1E473KB	CHIP 25V 0.047U	2	
C615		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C616,17		ECEA0JKS101	E.CAPACITOR 6.3V 100U	2	
C618-20		ECEA1CKS100	E.CAPACITOR 16V 10U	3	
C621		ECRJA020E12	TRIMMER	1	
C622		ECUM1H391KBV	CHIP 50V 390P	1	
C623		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C624,25		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C626		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C627		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C628,29		ECUM1E273KBN	CHIP 25V 0.027U	2	
C630		ECUM1E683ZFN	CHIP 25V 0.063U	1	
C631		ECUM1E273KBN	CHIP 25V 0.027U	1	
C632		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C633		ECUM1E223KBN	CHIP 25V 0.023U	1	
C634		ECEA0JSN220	E.CAPACITOR 6.3V 22U	1	
C635		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C636		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C637		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C638,39		ECUM1C224ZFN	CHIP 16V 0.22U	2	
C640		ECUM1H100DCV	CHIP 50V 10P	1	
C641,42		ECEA1CKS100	E.CAPACITOR 16V 10U	2	
C646		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C648		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C649,50		ECUM1H333KB	CHIP 50V 0.033U	2	
C651		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C652		ECEA0JKS101	E.CAPACITOR 6.3V 100U	1	
C653		ECEA1CU100	E.CAPACITOR 16V 10U	1	
C655		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C656		ECRJA020E12	TRIMMER	1	
C657		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C658		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C659		ECUM1H470JCV	CHIP 50V 47P	1	
C660		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C661		ECUM1H391KBV	CHIP 50V 390P	1	
C663		ECUM1H121JCV	CHIP 50V 120P	1	
D602,03		MA110	DIODE	2	<R>
D604,05		1SS250	DIODE	2	<R>
D606,07		MA110	DIODE	2	<R>
FL601		ELB4B004	FILTER	1	
FL602		VLF0595	FILTER	1	
FL603		ELB4B005	FILTER	1	
FL604		ELB4D001	FILTER	1	
FL605		VLF0596	FILTER	1	
IC601		MN15865VPS	IC	1	<R>
IC602		AN2583S	IC	1	<R>
IC603		AN78N05	IC	1	<R>
IC604		RC4558M	IC	1	<R>
IC605		AN6562S	IC	1	<R>
IC606		RC3415M	IC	1	<R>
IC607		MN1280Q	IC	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
L601		VLQ0300J560	COIL 56UH	1	
L602		VLQ0163K330	COIL 33UH	1	
L603		VLQEL05F101K	COIL 100UH	1	
P601		VJP1600T	CONNECTOR(MALE) 7P	1	
P602		VJP1595R	CONNECTOR(MALE) 2P	1	
P603		VJP1597T	CONNECTOR(MALE) 4P	1	
P604		VJP1596T	CONNECTOR(MALE) 3P	1	
Q601,02		2SD1819	TRANSISTOR	2	<R>
Q603		2SB710	TRANSISTOR CHIP	1	<R>
Q604		2SB1219	TRANSISTOR	1	<R>
Q605		2SD1820	TRANSISTOR	1	<R>
Q606		2SB1219	TRANSISTOR	1	<R>
Q607		2SD1820	TRANSISTOR	1	<R>
Q608-12		2SD1819	TRANSISTOR	5	<R>
Q613		2SA1255	TRANSISTOR	1	<R>
Q614		2SC3138	TRANSISTOR	1	<R>
Q615		2SD1819	TRANSISTOR	1	<R>
Q616,17		2SB1220	TRANSISTOR	2	<R>
Q618-21		2SD1819	TRANSISTOR	4	<R>
			RESISTORS		
R602,03		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R604		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R605		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R606		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R607		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R608		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R609,10		ERJ3GEYJ563	CHIP 1/20W 56K	2	
R611		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R612		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R613		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R614		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R615		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R616,17		ERJ3GEYJ104	CHIP 1/20W 100K	2	
R618		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R619		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R620,21		ERJ3GEYJ152	CHIP 1/20W 1.5K	2	
R622		ERJ3GEYJ271	CHIP 1/20W 270	1	
R623		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R624		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R625		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R626-29		ERJ3GEYJ102	CHIP 1/20W 1K	4	
R630		ERJ3GEYJ751	CHIP 1/20W 750	1	
R631		ERJ3GEYJ331	CHIP 1/20W 330	1	
R632		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R633		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R634		ERJ6GEYJ224	CHIP 1/10W 220K	1	
R635,36		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R637		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R638		ERJ6GEYF333	CHIP 1/10W 33K	1	
R639		ERJ6GEYF473	CHIP 1/10W 47K	1	
R640		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R641		ERJ6GEYF333	CHIP 1/10W 33K	1	
R642		ERJ6GEYF473	CHIP 1/10W 47K	1	
R643		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R644		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R645		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R646,47		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R648		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R649,50		ERJ3GEYJ123	CHIP 1/20W 12K	2	
R651		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R652		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R653		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R654,55		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R656		ERJ3GEYJ220	CHIP 1/20W 22	1	
R657,58		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R659		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R660-64		ERJ3GEYJ104	CHIP 1/20W 100K	5	
R665,66		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R667		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R668		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R669,70		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R671,72		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R673,74		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R675		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R676		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R677		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R678		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R679,80		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R681,82		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R683		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R684		ERJ3GEYJ681	CHIP 1/20W 680	1	
R685		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R686		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R687		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R688		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R689		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R691		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R692		ERJ3GEYJ100	CHIP 1/20W 10	1	
R693-96		ERJ3GEYJ103	CHIP 1/20W 10K	4	
R697		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R698		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R699		ERJ3GEYJ220	CHIP 1/20W 22	1	
R800		ERJ3GEYJ221	CHIP 1/20W 220	1	
R801		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
T601		ETE13K43AY	TRANSFORMER	1	
VR601		EVML1GA00B53	V.RESISTOR 5K	1	
VR602		EVML1GA00B15	V.RESISTOR 100K	1	
VR603		EVM7YSX00B14	V.RESISTOR 10K	1	
X601		VSX0196	CRYSTAL OSCILLATOR	1	<R>
			MISCELLANEOUS		
		VSC2318	AF SHIELD CASE	1	
	■	VEP22076A	SENSOR C.B.A.		
B201		VJP1948	CONNECTOR (MALE)	1	
			CAPACITORS		
C201		ECSF1AE476	T.CAPACITOR 10V 47U	1	
C202-04		ECUM1H150JCV	CHIP 50V 15P	3	
C206		ECRJA020E12	TRIMMER	1	
C207		ECUM1H220JCV	CHIP 50V 22P	1	
C208		ECUM1H150JCV	CHIP 50V 15P	1	
C209		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C210		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C211		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C213		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C215		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C217		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C218		ECUM1E104MD	CHIP 25V 0.1U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C219		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C220		ECEA1EKS100	E.CAPACITOR 25V 10U	1	
C221,22		ECUM1E104ZFN	CHIP 25V 0.1U	2	
C223		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C224		ECST1CY105Z	T.CAPACITOR 16V 1U	1	
C225		ECSF1AE336	T.CAPACITOR 10V 33U	1	
C226		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C229		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C230		ECEA1EKS100	E.CAPACITOR 25V 10U	1	
C231		ECEA1HKS010	E.CAPACITOR 50V 1U	1	
C232-35		ECUM1H270JCV	CHIP 50V 27P	4	
C236		ECSF1CE106	T.CAPACITOR 16V 10U	1	
C238		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C240-43		ECUM1E104ZFN	CHIP 25V 0.1U	4	
C244		ECUM1H120JCV	CHIP 50V 12P	1	
C245,46		ECUM1E104ZFN	CHIP 25V 0.1U	2	
C247		ECUM1H101JCV	CHIP 50V 100P	1	
C248-50		ECUM1H330JCV	CHIP 50V 33P	3	
C253		ECUM1H330JCV	CHIP 50V 33P	1	
C260,61		ECUM1E473ZFN	CHIP 25V 0.047U	2	
C262		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C263		ECUM1H100DCV	CHIP 50V 10P	1	
C265		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C267		ECUM1C224ZFN	CHIP 16V 0.22U	1	
C268-70		ECUM1E104ZFN	CHIP 25V 0.1U	3	
D201		MA110	DIODE	1	<R>
D204		MA110	DIODE	1	<R>
D208-11		MA110	DIODE	4	<R>
D212		MA3160H	DIODE	1	<R>
D213,14		MA110	DIODE	2	<R>
FL201		VLF0606	FILTER	1	
FP201		VJS2125	CONNECTOR	1	
IC201		MN5103	IC	1	<R>
IC202		UPD6147G	IC	1	<R>
IC203		MC8088B	IC	1	<R>
IC204		AN78L05	IC	1	<R>
L201-05		VLQ0163K150	COIL 15UH	5	
L206		VLQ0187K150	COIL 15UH	1	
L207		VLQ0163K150	COIL 15UH	1	
L210		VLQ0291	COIL	1	
L214		VLQ0291	COIL	1	
Q202,03		2SD1819	TRANSISTOR	2	<R>
Q204		2SC3930	TRANSISTOR	1	<R>
Q205		2SA1610	TRANSISTOR	1	<R>
Q206		2SD1819	TRANSISTOR	1	<R>
Q207		2SA1610	TRANSISTOR	1	<R>
Q208		2SC4176	TRANSISTOR	1	<R>
Q209		2SA1610	TRANSISTOR	1	<R>
Q210		2SC4176	TRANSISTOR	1	<R>
Q212,13		2SD1819	TRANSISTOR	2	<R>
Q214		2SC3931	TRANSISTOR	1	<R>
			RESISTORS		
R201		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R203		ERJ3GEYJ821	CHIP 1/20W 820	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R204		ERJ3GEYJ181	CHIP 1/20W 180	1	
R205		ERJ3GEYJ331	CHIP 1/20W 330	1	
R206		ERJ3GEYJ681	CHIP 1/20W 680	1	
R207		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R210		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R211		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R212		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R215		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R216		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R217		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R218		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R219		ERJ3GEYJ220	CHIP 1/20W 22	1	
R220		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R221		ERJ3GEYJ560	CHIP 1/20W 56	1	
R222		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R224		ERJ3GEYJ471	CHIP 1/20W 470	1	
R225		ERJ3GEYJ561	CHIP 1/20W 560	1	
R226		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R227		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R229		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R235		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R240		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R241		ERJ3GEYJ221	CHIP 1/20W 220	1	
R242		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R243,44		ERJ3GEYJ471	CHIP 1/20W 470	2	
R245,46		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R247		ERJ3GEYJ101	CHIP 1/20W 100	1	
R249		ERJ3GEYJ101	CHIP 1/20W 100	1	
R250		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R251		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R252		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R254		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R259		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R260		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R261		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R262		ERJ3GEYJ471	CHIP 1/20W 470	1	
VR201		EVM7YSX00B25	V.RESISTOR 200K	1	
VR202		EVM7YSW00B23	V.RESISTOR 2K	1	
VR203		EVM7YSX00B24	V.RESISTOR 20K	1	
X201		VSX0287	CRYSTAL OSCILLATOR	1	<R>
	■	VEP06455C	CAMERA OPERATION C.B.A.		
C1,C2		ECEA0JKS101	E.CAPACITOR 6.3V 100U	2	
C3		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
D1-D6		MA165	DIODE	6	<R>
D7		BR3668S	DIODE	1	<R>
D8		LN38GCPPSVT	DIODE	1	<R>
P1		VJP1614T	CONNECTOR(MALE)	1	
P3		VJP1606T	CONNECTOR(MALE)	1	
R1		ERDS2TJ682	C.RESISTOR 1/4W 6.8K	1	
R2,R3		ERDS2TJ563	C.RESISTOR 1/4W 56K	2	
R6		ERDS2TJ473	C.RESISTOR 1/4W 47K	1	
R7		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R8,R9		ERDS2TJ103	C.RESISTOR 1/4W 10K	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R10		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R11		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
SW1-W6		EVQQSU04W	SWITCH	6	<R>
SW7		VSS0126	SWITCH	1	<R>
SW9		EVQQSU04W	SWITCH	1	<R>
SW10		VSS0126	SWITCH	1	<R>
SW11		VSS0170	SWITCH	1	<R>
SW12		VSS0126	SWITCH	1	<R>
VR1		VRV0100	V.RESISTOR	1	
VR2		VRV0047	V.RESISTOR	1	
			E.V.F. SECTION		
	■	VEP27033E	E.V.F. (1) C.B.A.		
			CAPACITORS		
C701		ECEA0JKS101I	E.CAPACITOR 6.3V 100U	1	
C702		ECSE1CY684V	T.CAPACITOR 16V 0.68U	1	
C703		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C704		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C705		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C706		ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C707		ECUM1C2242FN	C.CAPACITOR CH 16V 0.22U	1	
C708		ECUM1E223KBN	C.CAPACITOR CH 25V 0.023U	1	
C709		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C710		ECUM1H152JN	C.CAPACITOR CH 50V 1500P	1	
C711		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C712		ECEA1AF470	E.CAPACITOR 10V 47U	1	
C713		ECEA0JK221	E.CAPACITOR 6.3V 220U	1	
C714		ECQK1392JZ	P.CAPACITOR 100V 3900P	1	
C715		ECEA1CKS220I	E.CAPACITOR 16V 22U	1	
C716		ECUM1H181KN	C.CAPACITOR CH 50V 180P	1	
C717		ECEA1HKS4R7	E.CAPACITOR 50V 4.7U	1	
C718		VCK0075K121	C.CAPACITOR 120P	1	
C719		VCK0058K331	C.CAPACITOR 330P	1	
C720,21		ECUM1H4732FN	C.CAPACITOR CH 50V 0.047U	2	
C722		ECUM1H1042FN	C.CAPACITOR CH 50V 0.1U	1	
D701		MA151K	DIODE	1	<R>
D702		ERA91-02	DIODE	1	<R>
D703		ERA34-10	DIODE	1	<R>
IC701		AN2510S	IC	1	<R>
L701		ELC04D007	COIL	1	
L702		ELH5L328	COIL	1	
P701		VJP1234	CONNECTOR(MALE)	1	
P702		VJP1231T	CONNECTOR(MALE)	1	
P703		VJP1229T	CONNECTOR(MALE)	1	
Q701		2SB709	TRANSISTOR	1	<R>
Q702		2SD968A	TRANSISTOR	1	<R>
Q703		2SA1022	TRANSISTOR	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			RESISTORS		
R701		ERJ6GEYK6R8	CHIP 1/10W 6.8	1	
R702		ERJ6GEYG682	CHIP 1/10W 6.8K	1	
R703		ERJ6GEYJ392	CHIP 1/10W 3.9K	1	
R704		ERJ6GEYJ182	CHIP 1/10W 1.8K	1	
R705		ERJ6GEYK4R7	CHIP 1/10W 4.7	1	
R706		ERJ6GEYJ150	CHIP 1/10W 15	1	
R707		ERJ6GEYJ151	CHIP 1/10W 150	1	
R708		ERJ6GEYJ102	CHIP 1/10W 1K	1	
R709		ERJ6GEYJ163	CHIP 1/10W 16K	1	
R710		ERJ6GEYJ561	CHIP 1/10W 560	1	
R711		ERJ6GEYJ102	CHIP 1/10W 1K	1	
R712		ERJ6GEYJ683	CHIP 1/10W 68K	1	
R713		ERJ6GEYJ222	CHIP 1/10W 2.2K	1	
R714		ERJ6GEYJ562	CHIP 1/10W 5.6K	1	
R715,16		ERJ6GEYJ102	CHIP 1/10W 1K	2	
R717		ERJ6GEYJ561	CHIP 1/10W 560	1	
R718		ERJ6GEYJ222	CHIP 1/10W 2.2K	1	
R719		ERJ8GCJ222V	CHIP 1/8W 2.2K	1	
R720		ERJ6GEYJ274	CHIP 1/10W 270K	1	
R721		ERJ6GEYJ223	CHIP 1/10W 22K	1	
R722		ERJ6GEYJ682	CHIP 1/10W 6.8K	1	
R723		ERJ6GEYJ102	CHIP 1/10W 1K	1	
R724		ERJ6GEYJ105	CHIP 1/10W 1M	1	
R726,27		ERJ6GEYK155	CHIP 1/10W 1.5M	2	
R728		ERJ6GEYK335	CHIP 1/10W 3.3M	1	
R729		ERJ6GEYJ474	CHIP 1/10W 470K	1	
R730		ERJ6GEYJ821	CHIP 1/10W 820	1	
R731		ERJ6GEYJ272	CHIP 1/10W 2.7K	1	
T701		ETF14L35A	TRANSFORMER	1	
TH701		VRT0012	THERMISTER	1	
VR701		VRV0079B221K	V.RESISTOR 220	1	
VR702		VRV0079B472K	V.RESISTOR 4.7K	1	
VR704		VRV0027B225K	V.RESISTOR 2.2M	1	
VR705		VRV0027B105K	V.RESISTOR 1M	1	
	■	VEP27037A	E.V.F. (2) C.B.A.		
D751		EBR5608S	DIODE	1	<R>
R751		ERJ8GCYJ151	M.RESISTOR CH 1/8W 150	1	
SW751		VSS0232	SWITCH	1	<R>
	■	VEP03582A	MAIN C.B.A.		INCLUDING THE SUB EMPHASIS C.B.A. (VEP03597A).
			CAPACITORS		
C1001		ECUM1H820JCV	CHIP 50V 82P	1	
C1002		ECUM1H561KBV	CHIP 50V 560P	1	
C1003		ECUM1H471KBV	CHIP 340PF 50V ~~420P~~	1	ECUX1HB341KBV
C1004		ECUM1C105ZFM	CHIP 16V 1U	1	
C1005,06		ECUM1E473ZFN	CHIP 25V 0.047U	2	
C1007		ECEA1EU101	E.CAPACITOR 25V 100U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C1008,09		ECUM1C105ZFM	CHIP 16V 1U	2	
C1010		ECEA1EU101	E.CAPACITOR 25V 100U	1	
C1011		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C1012		ECEA1AGE221	E.CAPACITOR 10V 220U	1	
C1013,14		ECUM1E223ZFN	CHIP 25V 0.022U	2	
C1015		ECEA1AKJ221	E.CAPACITOR 10V 220U	1	
C1016		ECEA0JKJ221	E.CAPACITOR 6.3V 220U	1	
C1017		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C1019		ECEA1AKJ221	E.CAPACITOR 10V 220U	1	
C1020,21		ECEA1CKJ101	E.CAPACITOR 16V 100U	2	
C1026		ECUM1H153KBN	CHIP 50V 0.015U	1	
C1027		ECUM1H681JN	CHIP 50V 680P	1	
C1028		ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C1029		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C1030,31		ECEA1AKA330	E.CAPACITOR 10V 33U	2	
C1032		ECUM1H102KBN	CHIP 50V 1000P	1	
C1033		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C1034		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C1035		ECEA1AGE221	E.CAPACITOR 10V 220U	1	
C1040		ECUM1E223ZFN	CHIP 25V 0.022U	1	
C1042		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C2001,02		ECUM1H101JCV	CHIP 50V 100P	2	
C2003		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2004,05		ECEA0JKA470	E.CAPACITOR 6.3V 47U	2	
C2006		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C2007		ECUM1H472ZFV	CHIP 50V 4700P	1	
C2009,10		ECEA0JK220	E.CAPACITOR 6.3V 22U	2	
C2011		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C2012		ECUM1H222KBV	CHIP 50V 2200P	1	
C2013		ECUM1H102KBV	CHIP 50V 1000P	1	
C2014		ECEA1VKN2R2	E.CAPACITOR 35V 2.2U	1	
C2015,16		ECUM1C105ZFM	CHIP 16V 1U	2	
C2017,18		ECUM1H102KBV	CHIP 50V 1000P	2	
C2019		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2020		ECUM1H471KBV	CHIP 50V 470P	1	
C2021,22		ECUM1C105ZFM	CHIP 16V 1U	2	
C2023		ECUM1E333ZFN	CHIP 25V 0.033U	1	
C2024		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C2025		ECEA1AKG680	E.CAPACITOR 10V 68U	1	
C2026		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2027		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2028		ECUM1C105ZFM	CHIP 16V 1U	1	
C2029		ECUM1H102KBV	CHIP 50V 1000P	1	
C2030		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C2032		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2033		ECUM1C105ZFM	CHIP 16V 1U	1	
C2034		ECUM1H101JCV	CHIP 50V 100P	1	
C2035		ECUM1H102KBV	CHIP 50V 1000P	1	
C2036		ECUM1E104KBM	C.CAPACITOR CH 25V 0.1U	1	
C2037		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2038		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C2039		ECEA0GK101	E.CAPACITOR 4V 100U	1	
C2040		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2041		ECUM1C105ZFM	CHIP 16V 1U	1	
C2042		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2043		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C2044		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C2045		ECQV1H393JZ	P.CAPACITOR 50V 0.039U	1	
C2046-48		ECUM1E333ZFN	CHIP 25V 0.033U	3	
C2049		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C2050		ECUM1C105ZFM	CHIP 16V 1U	1	
C2051		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2053		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C2054		ECUM1H333ZFN	CHIP 50V 0.033U	1	
C2055		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C2056-58		ECEA1EKN3R3	E.CAPACITOR 25V 3.3U	3	
C2059-61		ECUM1H472ZFV	CHIP 50V 4700P	3	
C2062		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C2063,64		ECEA1CKA470	E.CAPACITOR 16V 47U	2	
C2065-67		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	3	
C2068-70		ECUM1H103ZFN	CHIP 50V 0.01U	3	
C2072,73		ECUM1C474ZFM	CHIP 16V 0.47U	2	
C2074,75		ECUM1H150JCV	CHIP 50V 15P	2	
C2076		ECUM1C105ZFM	CHIP 16V 1U	1	
C2077		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C2078		ECUM1H473ZFN	CHIP 50V 0.047U	1	
C2081		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C2082		ECUM1E103ZFV	C.CAPACITOR CH 25V 0.01U	1	
C2083		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C3001		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3002		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3003,04		ECEA0JK221	E.CAPACITOR 6.3V 220U	2	
C3005		ECEA1AK470	E.CAPACITOR 10V 47U	1	
C3007		ECUM1E223ZFV	CHIP 25V 0.022U	1	
C3010,11		ECEA0JK221	E.CAPACITOR 6.3V 220U	2	
C3012		ECUM1H220JCV	CHIP 50V 22P	1	
C3013		ECUM1H122KBV	CHIP 50V 1200P	1	
C3014		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C3015,16		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3017		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3018		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3019		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C3020		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3021		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C3022		ECUM1H330JCV	CHIP 50V 33P	1	
C3023		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3024		ECUM1C105ZFM	CHIP 16V 1U	1	
C3025		ECUM1H471KBV	CHIP 50V 470P	1	
C3026,27		ECUM1H391KBV	CHIP 50V 390P	2	
C3028		ECEA1HKKR47	E.CAPACITOR 50V 0.47U	1	
C3029		ECUM1H820JCV	CHIP 50V 82P	1	
C3030		ECUM1H390JCV	CHIP 50V 39P	1	
C3031,32		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3033		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C3034		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3035		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C3037-39		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	3	
C3040		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3045,46		ECUM1H680JCV	CHIP 50V 68P	2	
C3047		ECUM1H181JV	CHIP 50V 180P	1	
C3048		ECUM1H820JCV	CHIP 50V 82P	1	
C3049		ECUM1H681JN	CHIP 50V 680P	1	
C3050		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3051		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C3052		ECUM1E103KBV	CHIP 25V 0.01U	1	
C3053		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C3054-56		ECUM1H103ZFV	CHIP 50V 0.01U	3	
C3057		ECUM1H101JCV	CHIP 50V 100P	1	
C3058		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3059		ECUM1H470JCV	CHIP 50V 47P	1	
C3060		ECUM1H100CCV	CHIP 50V 10P	1	
C3061,62		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3063		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3064,65		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3066		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C3068		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3070		ECUM1H270JCV	CHIP 50V 27P	1	
C3071		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C3072		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3074,75		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3076		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C3077		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3078,79		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3080		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C3083		ECUM1H470JCV	CHIP 50V 47P	1	
C3085		ECUM1H151JV	CHIP 50V 150P	1	
C3086		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C3087		ECUM1H681KBV	CHIP 50V 680P	1	
C3096,97		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3099		ECUM1H560JCV	CHIP 50V 56P	1	
C3100		ECUM1H080CCV	C.CAPACITOR CH 50V 8P	1	
C3103		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C3104		ECUM1H100CCV	CHIP 50V 10P	1	
C3105		ECUM1H271JV	CHIP 50V 270P	1	
C3110		ECUM1E103ZFV	C.CAPACITOR CH 25V 0.01U	1	
C3111		ECUM1H101JCV	CHIP 50V 100P	1	
C3112		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3115		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C3116		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3118,19		ECUM1E104ZFN	CHIP 25V 0.1U	2	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C3120		ECUM1H470JCV	CHIP 50V 47P	1	
C3121		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3123		ECUM1H221KBV	CHIP 50V 220P	1	
C3124		ECUM1H561JN	CHIP 50V 560P	1	
C3201		ECUM1H820JCV	CHIP 50V 82P	1	
C3202		ECUM1H271KBV	CHIP 50V 270P	1	
C3203		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3204		ECUM1H181JV	CHIP 50V 180P	1	
C3205		ECUM1H271KBV	CHIP 50V 270P	1	
C3206		ECUM1H820JCV	CHIP 50V 82P	1	
C3207		ECUM1H271KBV	CHIP 50V 270P	1	
C3208		ECUM1H181JV	CHIP 50V 180P	1	
C3209		ECUM1H221JV	C.CAPACITOR CH 50V 220P	1	
C3210		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C3501,02		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3503		ECUM1H121JCV	CHIP 50V 120P	1	
C3504		ECUM1H151JV	CHIP 50V 150P	1	
C3505		ECUM1H390JCV	CHIP 50V 39P	1	
C3506,07		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C3508		ECQV1H394JZ	P.CAPACITOR 50V 0.39U	1	
C4001		ECQP1222JZ	P.CAPACITOR 100V 2200P	1	
C4002		ECRHC120N11	TRIMER	1	
C4003		ECUM1H562KBV	CHIP 50V 5600P	1	
C4004		ECUM1H472KBV	CHIP 50V 4700P	1	
C4005		ECUM1H122KBV	CHIP 50V 1200P	1	
C4007		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C4008		ECUM1H333ZFN	CHIP 50V 0.033U	1	
C4009		ECEA0JKA330	E.CAPACITOR 6.3V 33U	1	
C4011		ECUM1E822KBV	CHIP 25V 8200P	1	
C4012		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4013		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4014		ECUM1H182KBV	CHIP 50V 1800P	1	
C4015		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C4016		ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C4017		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4018		ECEA0JKA330	E.CAPACITOR 6.3V 33U	1	
C4019		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C4021		ECUM1E153KBN	CHIP 25V 0.015U	1	
C4023		ECUM1E183KBN	CHIP 25V 0.018U	1	
C4024		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4025		ECEA1CKA220	E.CAPACITOR 16V 22U	1	
C4026		ECEA0JK220	E.CAPACITOR 6.3V 22U	1	
C4027		ECUM1H682KBN	CHIP 50V 6800P	1	
C4028		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4029		ECUM1H222KBV	CHIP 50V 2200P	1	
C4030		ECEA1AK101	E.CAPACITOR 10V 100U	1	
C4031		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C4032		ECEA1HKN010	E.CAPACITOR 50V 1U	1	
C4033		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C4034		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4036		ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C4037		ECEA1EKK4R7	E.CAPACITOR 25V 4.7U	1	
C4038		ECEA1AKA330	E.CAPACITOR 10V 33U	1	
C4039		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C4040		ECUM1H151JV	CHIP 50V 150P	1	
C4042		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C4043		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C4045		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C5001		ECUM1H473ZFN	CHIP 50V 0.047U	1	
C5002		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5003		ECUM1H473ZFN	CHIP 50V 0.047U	1	
C5004		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5005		ECUM1H473ZFN	CHIP 50V 0.047U	1	
C5006		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5007		ECUM1H473ZFN	CHIP 50V 0.047U	1	
C5008		ECSF1VE105	T.CAPACITOR 35V 1U	1	
C5009		ECUM1C105ZFM	CHIP 16V 1U	1	
C5010,11		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C5012,13		ECUM1C105ZFM	CHIP 16V 1U	2	
C5014,15		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C5016		ECUM1C105ZFM	CHIP 16V 1U	1	
C5017-20		ECUM1H220JCV	CHIP 50V 22P	4	
C5021		ECUM1C105ZFM	CHIP 16V 1U	1	
C5022		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5023		ECUM1H330JCV	CHIP 50V 33P	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C5024		ECEB0JU101S	E.CAPACITOR 6.3V 100U	1	
C5025		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5026		ECUM1H101JCV	CHIP 50V 100P	1	
C5027		ECUM1H680JCV	CHIP 50V 68P	1	
C5029		ECUM1H050CCV	CHIP 50V 5P	1	
C5030		ECUM1H060CCV	C.CAPACITOR CH 50V 6P	1	
C5031		ECUM1H330JCV	CHIP 50V 33P	1	
C5032		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5033		ECUM1H332KBV	CHIP 50V 3300P	1	
C5034		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C5035		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5036		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C5037		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C5038		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5039		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C5040		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C5041		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C5047-50		ECUM1E223KBN	CHIP 25V 0.023U	4	
C5051		ECUM1H101JCV	CHIP 50V 100P	1	
C5052,53		ECUM1H103ZFV	CHIP 50V 0.01U	2	
C5054		ECQB1H153JZ	P.CAPACITOR 50V 0.015U	1	
C6001		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C6002		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C6003		ECEA1EKK3R3	E.CAPACITOR 25V 3.3U	1	
C6004		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C6005		ECUM1H220JCV	CHIP 50V 22P	1	
C6006,07		ECUM1H150JCV	CHIP 50V 15P	2	
C6008		ECUM1C105ZFM	CHIP 16V 1U	1	
C6009-12		ECUM1H103ZFV	CHIP 50V 0.01U	4	
C6013		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C6014		ECEA1AKA470	E.CAPACITOR 10V 47U	1	
C6015		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C6016,17		ECUM1H102KBV	CHIP 50V 1000P	2	
C6018-20		ECUM1E104ZFN	CHIP 25V 0.1U	3	
C6021		ECEA1EU470	E.CAPACITOR 25V 47U	1	
C6022		ECUM1H562ZFV	CHIP 50V 5600P	1	
C6024		ECUM1C474ZFM	CHIP 16V 0.47U	1	
C6025		ECEA1HKK010	E.CAPACITOR 50V 1U	1	
C6026		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C6027		VCYD1C104MR1	S.CAPACITOR 16V 0.1U	1	
C6028,29		ECUM1E104ZFN	CHIP 25V 0.1U	2	
C6033		ECUM1H391KBV	CHIP 50V 390P	1	
C6035,36		VCK0047	CAPACITOR	2	
C8001		ECUM1H103ZFM	CHIP 50V 0.01U	1	
C8002		ECUM1H121JCM	CHIP 50V 120P	1	
C8004		ECUM1H121JCV	CHIP 50V 120P	1	
C8005		ECUM1H102KBV	CHIP 50V 1000P	1	
C8006		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8009		ECUM1H472ZFV	CHIP 50V 4700P	1	
C8010		ECUM1H470JCV	CHIP 50V 47P	1	
C8011		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C8012		ECUM1E103KBV	CHIP 25V 0.01U	1	
C8013		ECQB1H223JZ	P.CAPACITOR 50V 0.022U	1	
C8014		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C8015		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8016		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C8017-19		ECUM1H103ZFN	CHIP 50V 0.01U	3	
C8021		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8022-25		ECUM1H103ZFN	CHIP 50V 0.01U	4	
C8026		ECUM1C105ZFM	CHIP 16V 1U	1	
C8027		ECEA0GK470	E.CAPACITOR 4V 47U	1	
C8028		ECUM1H030CCV	CHIP 50V 3P	1	
C8029		ECUM1H102KBV	CHIP 50V 1000P	1	
C8030		ECEA0JU221	E.CAPACITOR 6.3V 220U	1	
C8031		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C8032		ECEA0JKA470	E.CAPACITOR 6.3V 47U	1	
C8033		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C8034		ECUM1H102KBV	CHIP 50V 1000P	1	
C8035		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8036		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C8037		ECUM1H103ZFV	CHIP 50V 0.01U	1	
C8039		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C8040		ECUM1E473ZFN	CHIP 25V 0.047U	1	
C8041		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C8042		ECUM1H103ZFN	CHIP 50V 0.01U	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
C8043		ECUM1H331KBN	CHIP 50V 330P	1	
C8044		ECUM1H1032FN	CHIP 50V 0.01U	1	
C8045,46		ECUM1H1032FV	CHIP 50V 0.01U	2	
C8048		ECUM1H681JN	CHIP 50V 680P	1	
C8050		ECUM1H561KBV	CHIP 50V 560P	1	
C8051		ECEA1CKK100	E.CAPACITOR 16V 10U	1	
C8054		ECUM1H221KBV	CHIP 50V 220P	1	
D1001		MA141K	DIODE	1	<R>
D1003		MA159A	DIODE	1	<R>
D1004		MA3075H	DIODE	1	<R>
D2001		DA204U	DIODE	1	<R>
D2002		MA143	DIODE	1	<R>
D2003		DA204U	DIODE	1	<R>
D2005		MA121	DIODE	1	<R>
D2008		MA141K	DIODE	1	<R>
D2009-11		DAN202U	DIODE	3	<R>
D2012,13		MA141K	DIODE	2	<R>
D2014		MA141A	DIODE	1	<R>
D3003		MA141K	DIODE	1	<R>
D3005		1SS283	DIODE	1	<R>
D3006		DAN202U	DIODE	1	<R>
D3009		DAN202U	DIODE	1	<R>
D3011		MA141A	DIODE	1	<R>
D4001		DAN202U	DIODE	1	<R>
D4002		MA141K	DIODE	1	<R>
D4004		MA141K	DIODE	1	<R>
D4005		MA143	DIODE	1	<R>
D4006		MA141A	DIODE	1	<R>
D5001		MA141K	DIODE	1	<R>
D6001,02		MA141K	DIODE	2	<R>
D6003		DAP202U	DIODE	1	<R>
D6004		MA121	DIODE	1	<R>
D6005		DAP202U	DIODE	1	<R>
D6006-10		MA141K	DIODE	5	<R>
D6012		DAN202U	DIODE	1	<R>
D6013-17		DAP202U	DIODE	5	<R>
D6018,19		DAN202U	DIODE	2	<R>
D6023		DAP202U	DIODE	1	<R>
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D6026		MA141K	DIODE	1	<R>
D6031		MA141A	DIODE	1	<R>
D6032		MA141K	DIODE	1	<R>
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D6037		MA141A	DIODE	1	<R>
D8001		MA141A	DIODE	1	<R>
D8002		MA141K	DIODE	1	<R>
DL3001		EFDCD124A138	DELAY LINE	1	
FL3001		ELB4C005	FILTER	1	
FL3002		ELB4E014	FILTER	1	
FL3003		VLF0722	FILTER	1	
FL3004		VLF0598	FILTER	1	
FL5001		VLF0625	FILTER	1	
FL5002		VLF0593	FILTER	1	
FL8001		ELB4B010	FILTER	1	
FL8002		ELB4B025	FILTER	1	
FL8003		VLF0626	FILTER	1	
IC1001		BA6149LS	IC	1	<R>
IC1002		UN102	IC	1	<R>
IC1003		UPC358G2	IC	1	<R>
IC1004		UPC393G2	IC	1	<R>
IC2001		MN67461VDJF	IC	1	<R>
IC2002		AN3798NS	IC	1	<R>
IC2005		BA6430S	IC	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
IC2006		TA8402F	IC	1	<R>
IC2007		MN1551VYJS	IC	1	<R>
IC3001		AN3215S	IC	1	<R>
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IC3201		AN3292S	IC	1	<R>
IC4001		UPC1513G	IC	1	<R>
IC4002		UPC2300G	IC	1	<R>
IC4003		M5201L	IC	1	<R>
IC5001		AN3311S	IC	1	<R>
IC6001		MN15361VNU	IC	1	<R>
IC6002		S6700A	IC	1	<R>
IC6003		LM2903M	IC	1	<R>
IC6004		M54543L	IC	1	<R>
IC6005		UPD4094BG	IC	1	<R>
IC8001		AN6367S	IC	1	<R>
IC8002		MN6163AS	IC	1	<R>
L1001		ELC07D003	COIL	1	
L1002		ELC08D038	COIL 180UH	1	
L1003		ELC06D005	COIL	1	
L1004		ELC07D003	COIL	1	
L1005		ELC08D027	COIL	1	
L1006		ELC07D003	COIL	1	
L1007		ELC08D025	COIL 600UH	1	
L1008		VLQ0129	COIL 300UH	1	
L1011,12		VLQEL05F221K	COIL 220UH	2	
L3001-05		VLQEL05F101K	COIL 100UH	5	
L3006		VLQ0187K8R2	COIL 8.2UH	1	
L3007		VLQ0187K120	COIL 12H	1	
L3008		VLQEL04F680K	COIL 68UH	1	
L3009		VLQEL04F270K	COIL 27UH	1	
L3012		VLQEL04F4R7K	COIL 4.7UH	1	
L3013		VLQEL05F101K	COIL 100UH	1	
L3014		VLQ0187K5R6	COIL 5.6UH	1	
L3015		VLQ0187K120	COIL 12H	1	
L3017		VLQEL04F820K	COIL 82UH	1	
L3018		VLQEL05F101K	COIL 100UH	1	
L3019		VLQEL04F220K	COIL 22UH	1	
L3020		VLQ0163K101	COIL 100UH	1	
L3501		VLQEL04F100K	COIL 10UH	1	
L3502		VLQEL04F120K	COIL 12UH	1	
L4001		VLQEL05F221K	COIL 220UH	1	
L4002		ELTMR822JB	COIL	1	
L4003		ELTMR153KB	COIL	1	
L5001		VLQEL04F390K	COIL 39UH	1	
L5002		VLQ0163K150	COIL 15UH	1	
L5004		VLQEL04F150K	COIL 15UH	1	
L5006		VLQEL04F220K	COIL 22UH	1	
L5007,08		VLQEL05F101K	COIL 100UH	2	
L5009		VLQEL05F681K	COIL 680UH	1	
L5010		VLQEL05F101K	COIL 100UH	1	
L5012		VLQEL04F101K	COIL 100UH	1	
L5013		VLQEL05F101K	COIL 100UH	1	
L6001		VLQEL05F101K	COIL 100UH	1	
L8001		VLQEL05F101K	COIL 100UH	1	
L8002		VLQEL04F470K	COIL 47UH	1	
L8004		VLQ0187K150	COIL 15UH	1	
L8008		VLQEL05F101K	COIL 100UH	1	
P1001		VJP1230T	CONNECTOR(MALE) 3P	1	
P1003		VJP1229T	CONNECTOR(MALE) 2P	1	
P2001		VJS2120	CONNECTOR(FEMALE) 15P	1	
P2002		VJP1923T	CONNECTOR(MALE) 14P	1	
P2003		VJP1595T	CONNECTOR(MALE) 2P	1	
P3001		VJP1595T	CONNECTOR(MALE) 2P	1	
P3002		VJP1598T	CONNECTOR(MALE) 5P	1	
P3003		VJS2119	CONNECTOR(FEMALE) 14P	1	
P3004		VJP1601T	CONNECTOR(MALE) 8P	1	
P3005		VJP1595T	CONNECTOR(MALE) 2P	1	
P3006		VJP1604T	CONNECTOR(MALE) 11P	1	
P3201		VJR0366	CONNECTOR	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
P4001		VJP1596T	CONNECTOR(MALE) 3P	1	
P4002		VJP1598T	CONNECTOR(MALE) 5P	1	
P4003		VJP1595T	CONNECTOR(MALE) 2P	1	
P4004		VJP1595R	CONNECTOR(MALE) 2P	1	
P4005		VJP1595T	CONNECTOR(MALE) 2P	1	
P5001		VJS2117	CONNECTOR 12P	1	
P6001		VJP1595T	CONNECTOR(MALE) 2P	1	
P6002		VJP1605T	CONNECTOR(MALE) 12P	1	
P6003		VJS2107	CONNECTOR(FEMALE) 22P	1	
P6004		VJP1229T	CONNECTOR(MALE) 2P	1	
P6005		VJP1595T	CONNECTOR(MALE) 2P	1	
P6006		VJP1596T	CONNECTOR(MALE) 3P	1	
P6007		VJP1598T	CONNECTOR(MALE) 5P	1	
P6009		VJP1597T	CONNECTOR(MALE) 4P	1	
P6010		VJP1599T	CONNECTOR(MALE) 6P	1	
P6012		VJP1229T	CONNECTOR(MALE) 2P	1	
P6013		VJP1595R	CONNECTOR(MALE) 2P	1	
P8001		VJP1595R	CONNECTOR(MALE) 2P	1	
P8002		VJP1599T	CONNECTOR(MALE) 6P	1	
Q1001		2SB1218	TRANSISTOR	1	<R>
Q1002		2SB956	TRANSISTOR	1	<R>
Q1003		2SD1293M	TRANSISTOR	1	<R>
Q1004,05		2SD1328	TRANSISTOR CHIP	2	<R>
Q1007		2SD1328	TRANSISTOR CHIP	1	<R>
Q2001-03		2SB956	TRANSISTOR	3	<R>
Q3001		XN1401	TRANSISTOR	1	<R>
Q3006		2SC3938	TRANSISTOR	1	<R>
Q3007		2SD1819	TRANSISTOR	1	<R>
Q3008		XN4601	TRANSISTOR	1	<R>
Q3010		XN4601	TRANSISTOR	1	<R>
Q3018,19		XN4601	TRANSISTOR	2	<R>
Q3021		2SC3931	TRANSISTOR	1	<R>
Q3024		2SB1218	TRANSISTOR	1	<R>
Q3025,26		2SB970	TRANSISTOR CHIP	2	<R>
Q3027		2SD1819	TRANSISTOR	1	<R>
Q3030		2SB1218	TRANSISTOR	1	<R>
Q3031		2SD1819	TRANSISTOR	1	<R>
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Q3036		2SC3931	TRANSISTOR	1	<R>
Q3037		2SB1218	TRANSISTOR	1	<R>
Q3038		2SD1820	TRANSISTOR	1	<R>
Q3040		XN4401	TRANSISTOR	1	<R>
Q3042,43		XN4501	TRANSISTOR	2	<R>
Q3044		2SD1328	TRANSISTOR CHIP	1	(R,S,T,X)<R>
Q3045,46		2SC3931	TRANSISTOR	2	<R>
Q3501		2SA812	TRANSISTOR	1	<R>
Q3502		2SA1175	TRANSISTOR	1	<R>
Q3503		2SD1819	TRANSISTOR	1	<R>
Q4001		2SD1820	TRANSISTOR	1	<R>
Q4002		2SD1328	TRANSISTOR CHIP	1	<R>
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Q4007		2SD1823	TRANSISTOR	1	<R>
Q4009		2SD1819	TRANSISTOR	1	<R>
Q4011		2SD1328	TRANSISTOR CHIP	1	<R>
Q4012		2SB1218	TRANSISTOR	1	<R>
Q4013		2SD1328	TRANSISTOR CHIP	1	<R>
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Q5002,03		XN1501	TRANSISTOR	2	<R>
Q5007		XN1401	TRANSISTOR	1	<R>
Q5008,09		XN1501	TRANSISTOR	2	<R>
Q5013		2SC3931	TRANSISTOR	1	<R>
Q5014		2SD1819	TRANSISTOR	1	<R>
Q5015		2SC3931	TRANSISTOR	1	<R>
Q5017,18		2SD1819	TRANSISTOR	2	<R>
Q6001		2SB1218	TRANSISTOR	1	<R>
Q6002,03		2SB779	TRANSISTOR	2	<R>
Q6004		2SD1820	TRANSISTOR	1	<R>
Q6005		2SD1819	TRANSISTOR	1	<R>
Q8001		2SC3931	TRANSISTOR	1	<R>
Q8002,03		2SD1819	TRANSISTOR	2	<R>
Q8004		2SB1218	TRANSISTOR	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q8005,06		2SC3931	TRANSISTOR	2	<R>
Q8007		2SD1819	TRANSISTOR	1	<R>
Q8008		2SB1218	TRANSISTOR	1	<R>
Q8009		2SC3931	TRANSISTOR	1	<R>
Q8010		2SD1819	TRANSISTOR	1	<R>
Q8011		XN1401	TRANSISTOR	1	<R>
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Q8013		2SC3931	TRANSISTOR	1	<R>
Q8014		2SD1819	TRANSISTOR	1	<R>
			COMBINATION PARTS		
			(TRANSISTOR & RESISTORS)		
QR1001		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR1002		FA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR2004		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR2005		GN1F4Z	TRANSISTOR-RESISTOR	1	<R>
QR3001		GN1F4M	TRANSISTOR-RESISTOR	1	<R>
QR3002		GN1A4M	TRANSISTOR-RESISTOR	1	<R>
QR3006		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR3007		XN1212	TRANSISTOR-RESISTOR	1	<R>
QR3009		XN1212	TRANSISTOR-RESISTOR	1	<R>
QR3011		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR3014-16		GA1F4M	TRANSISTOR-RESISTOR	3	<R>
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QR3019		GN1F4M	TRANSISTOR-RESISTOR	1	<R>
QR3020		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR3021,22		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR3027		GA1F4Z	TRANSISTOR-RESISTOR	1	<R>
QR3028		XN1213	TRANSISTOR-RESISTOR	1	<R>
QR3029,30		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR3032		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR3034,35		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR3037		UN5117	TRANSISTOR-RESISTOR	1	<R>
QR4002		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR4004		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR4008		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR5001		FMG2UX	TRANSISTOR-RESISTOR	1	<R>
QR5002		XN1112	TRANSISTOR-RESISTOR	1	<R>
QR5003		FMG2UX	TRANSISTOR-RESISTOR	1	<R>
QR5004		XN1112	TRANSISTOR-RESISTOR	1	<R>
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QR5007		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR5008		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR5010		XN1212	TRANSISTOR-RESISTOR	1	<R>
QR6001		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
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QR6005		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6006		GN1A4Z	TRANSISTOR-RESISTOR	1	<R>
QR6009,10		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR6011		GN1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6012		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6013-15		GN1A4Z	TRANSISTOR-RESISTOR	3	<R>
QR6016		GN1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6017,18		GN1A4Z	TRANSISTOR-RESISTOR	2	<R>
QR6019		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6023		GN1A4Z	TRANSISTOR-RESISTOR	1	<R>
QR6024,25		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR6026		GN1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6027,28		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR6029		GN1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6030,31		GA1L4M	TRANSISTOR-RESISTOR	2	<R>
QR6033		GA1L4L	TRANSISTOR-RESISTOR	1	<R>
QR6035		GN1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6036		GA1L4M	TRANSISTOR-RESISTOR	1	<R>
QR6037		XN4316	TRANSISTOR-RESISTOR	1	<R>
QR8001		GN1F4M	TRANSISTOR-RESISTOR	1	<R>
QR8003		GA1F4M	TRANSISTOR-RESISTOR	1	<R>
QR8004		XN4215	TRANSISTOR-RESISTOR	1	<R>
QR8005		GN1F4M	TRANSISTOR-RESISTOR	1	<R>
QR8006		GA1F4Z	TRANSISTOR-RESISTOR	1	<R>
QR8007		GA1L4M	TRANSISTOR-RESISTOR	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R3090		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3091		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3093,94		ERJ3GEYJ182	CHIP 1/20W 1.8K	2	
R3095		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3097		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3098,99		ERJ3GEYJ822	CHIP 1/20W 8.2K	2	
R3100,01		ERJ3GEYJ153	CHIP 1/20W 15K	2	
R3103		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R3110		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R3111		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3115,16		ERJ3GEYJ154	CHIP 1/20W 150K	2	
R3117		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3118		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3120		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3121		ERJ3GEYJ151	CHIP 1/20W 150	1	
R3122		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3123		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R3124		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3125		ERJ3GEYJ121	CHIP 1/20W 120	1	
R3126,27		ERJ3GEYJ333	CHIP 1/20W 33K	2	
R3128,29		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3139		ERJ3GEYJ561	CHIP 1/20W 560	1	
R3140		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3141		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R3142		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3143		ERJ3GEYJ824	CHIP 1/20W 820K	1	
R3144		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3145,46		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3147		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3148		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3149		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R3150		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3152		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R3153		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3154		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R3155		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3158		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R3159,60		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3161		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3162		ERJ3GEYJ561	CHIP 1/20W 560	1	
R3163		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3164		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3167,68		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R3169,70		ERJ3GEYJ392	CHIP 1/20W 3.9K	2	
R3201		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3202		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3203		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3204		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3205		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3206-08		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	3	
R3209		ERJ3GEYG471	M.RESISTOR CH1/20W 470	1	
R3210		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	1	
R3211		ERJ3GEYG102	M.RESISTOR CH1/20W 1K	1	
R3212		ERJ3GEYG332	M.RESISTOR CH1/20W 3.3K	1	
R3213		ERJ3GEYG152	M.RESISTOR CH1/20W 1.5K	1	
R3501		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R3502		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3503		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3504		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3505		ERJ6GMYJ4R7	CHIP 1/10W 4.7	1	
R3506		ERJ3GEYJ823	CHIP 1/20W 82K	1	
R4001		ERJ3GEYJ100	CHIP 1/20W 10	1	
R4002		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R4003		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R4004		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R4005		ERJ3GEYJ151	CHIP 1/20W 150	1	
R4006		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R4007		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R4009		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R4010		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4011		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R4012		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4013		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R4014		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R4016		ERJ3GEYJ181	CHIP 1/20W 180	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R4018		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R4019		ERJ3GEYJ471	CHIP 1/20W 470	1	
R4020,21		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R4025		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4026		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R4027		ERJ3GEYJ561	CHIP 1/20W 560	1	
R4028		ERJ3GEYJ271	CHIP 1/20W 270	1	
R4029		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R4030		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R4031,32		ERJ3GEYJ124	CHIP 1/20W 120K	2	
R4033,34		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R4035		ERJ3GEYJ101	CHIP 1/20W 100	1	
R4036		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R4037		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4038		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R4039		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R4040		ERJ3GEYJ681	CHIP 1/20W 680	1	
R4041		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R4042		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R4044		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R4045		ERJ3GEYJ224	CHIP 1/20W 220K	1	
R4046		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R4047		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R4048		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R4049		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R4050,51		ERJ3GEYJ122	CHIP 1/20W 1.2K	2	
R4052,53		ERJ3GEYJ272	CHIP 1/20W 2.7K	2	
R4054		ERJ3GEYJ124	CHIP 1/20W 120K	1	
R4055		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R4056		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R4057		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R5001		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5002		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5003		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5004		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5005		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5006,07		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5008		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5009		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5010		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5011		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5012		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5013,14		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5015		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5016		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5017		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5018		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5019		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5020,21		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5022		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5023		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5024		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R5025		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R5026		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5027,28		ERJ3GEYJ332	CHIP 1/20W 3.3K	2	
R5029		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5030-33		ERJ3GEYJ152	CHIP 1/20W 1.5K	4	
R5034		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5035		ERJ3GEYJ681	CHIP 1/20W 680	1	
R5036,37		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R5038		ERJ3GEYJ561	CHIP 1/20W 560	1	
R5039		ERJ3GEYJ101	CHIP 1/20W 100	1	
R5040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5041		ERJ3GEYJ681	CHIP 1/20W 680	1	
R5042		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R5043		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5044		ERJ3GEYJ121	CHIP 1/20W 120	1	
R5045		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5047		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R5048,49		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R5050		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R5052		ERJ3GEYJ821	CHIP 1/20W 820	1	
R5053		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R5054		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R5055		ERJ3GEYJ391	CHIP 1/20W 390	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
			RESISTORS		
R1001		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R1002		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1003		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1004		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1005		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1006		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R1007		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1008		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R1009		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R1012,13		ERJ8GCYJ122	M.RESISTOR CH 1/8W 1.2K	2	
R1014,15		ERJ8GCYJ152	M.RESISTOR CH 1/8W 1.5K	2	
R1018		ERJ8GCYJ122	M.RESISTOR CH 1/8W 1.2K	1	
R1019		ERJ8GCYJ821	CHIP 1/8W 820	1	
R1020,21		ERJ3GEYJ183	CHIP 1/20W 18K	2	
R1022,23		ERJ3GEYJ681	CHIP 1/20W 680	2	
R1024		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R1025		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R1026-31		ERJ3GEYJ391	CHIP 1/20W 390	6	
R1032		ERJ3GEYJ821	CHIP 1/20W 820	1	
R1033		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R1035		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R1036		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R1037		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R1038		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R1039		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R1040		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R1041		ERJ3GEYJ101	CHIP 1/20W 100	1	
R1042		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R1043		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R1044		ERJ8GCYJ560	CHIP 1/8W 56	1	
R1045		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R1046		ERJ3GEYJ684	CHIP 1/20W 680K	1	
R1047		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R1048		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R1049		VSF0015A10	FUSE	1	
R1050		VSF0015A08	IC PROTECTOR	1	(R)
R1051		VSF0059	FUSE	1	(R)
R1052		ERJ3GEYJ681	CHIP 1/20W 680	1	
R2001,02		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R2003		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R2004		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R2005		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R2006		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R2007		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2009		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2010		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R2011		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R2012		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R2013		ERJ3GEYJ154	CHIP 1/20W 150K	1	
R2014		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2015		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R2017		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2018		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2019		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R2020		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R2022		ERJ3GEYJ271	CHIP 1/20W 270	1	
R2025		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2028		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R2029		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R2030		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R2031		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R2032		ERJ3GEYJ274	CHIP 1/20W 270K	1	
R2034		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R2036,37		ERJ3GEYJ330	CHIP 1/20W 33	2	
R2038		ERDS2TJR68	C.RESISTOR 1/4W 0.68	1	
R2039		ERJ3GEYJ330	CHIP 1/20W 33	1	
R2040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2041		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R2042		ERJ3GEYJ683	CHIP 1/20W 68K	1	
R2043		ERJ3GEYJ221	CHIP 1/20W 220	1	
R2044		ERJ3GEYJ820	CHIP 1/20W 82	1	
R2045		ERJ8GCYK2R2	M.RESISTOR CH 1/8W 2.2	1	
R2046,47		ERJ8GCYK1R8	M.RESISTOR CH 1/8W 1.8	2	
R2048		ERJ3GEYJ153	CHIP 1/20W 15K	1	
R2049-51		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R2053,54		ERJ3GEYJ682	CHIP 1/20W 6.8K	2	
R2060		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R2062		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R2066		ERJ3GEYJ221	CHIP 1/20W 220	1	
R2067-69		ERJ6GMYJ150	M.RESISTOR CH1/10W 15	3	
R2070-72		ERJ3GEYJ104	CHIP 1/20W 100K	3	
R2077		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R2079		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R2080		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R2084-86		ERJ3GEYJ104	CHIP 1/20W 100K	3	
R3001		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3002		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3003		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R3004		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R3008		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3009		ERJ3GEYJ680	CHIP 1/20W 68	1	
R3010		ERJ3GEYJ220	CHIP 1/20W 22	1	
R3011,12		ERJ3GEYJ821	CHIP 1/20W 820	2	
R3014		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3015		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R3016		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3017		ERJ3GEYJ560	CHIP 1/20W 56	1	
R3018		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3020,21		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R3022,23		ERJ3GEYJ270	CHIP 1/20W 27	2	
R3024		ERJ3GEYJ680	CHIP 1/20W 68	1	
R3025		ERJ3GEYJ220	CHIP 1/20W 22	1	
R3026,27		ERJ3GEYJ821	CHIP 1/20W 820	2	
R3028		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R3029		ERJ3GEYJ681	CHIP 1/20W 680	1	
R3030		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3031		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3032		ERJ3GEYJ391	CHIP 1/20W 390	1	
R3033		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3034,35		ERJ3GEYJ683	CHIP 1/20W 68K	2	
R3036		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3039,40		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3041		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3042		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3043,44		ERJ3GEYJ472	CHIP 1/20W 4.7K	2	
R3045		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R3046,47		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R3048		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R3049		ERJ3GEYJ394	CHIP 1/20W 390K	1	
R3050		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3051		ERJ3GEYJ221	CHIP 1/20W 220	1	
R3052		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3053		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3054		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3055		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R3056		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R3057		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R3058		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R3059		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R3060		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3061		ERJ3GEYJ331	CHIP 1/20W 330	1	
R3062		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3063,64		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R3065		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3066,67		ERJ3GEYJ182	CHIP 1/20W 1.8K	2	
R3068		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R3069		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R3070		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R3076		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R3077		ERJ3GEYJ561	CHIP 1/20W 560	1	
R3078,79		ERJ3GEYJ152	CHIP 1/20W 1.5K	2	
R3080		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R3082		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R3083		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R3085		ERJ3GEYJ271	CHIP 1/20W 270	1	
R3087		ERJ3GEYJ471	CHIP 1/20W 470	1	
R3089		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R5056-59		ERJ3GEYJ471	CHIP 1/20W 470	4	
R5063		ERJ3GEYJ100	CHIP 1/20W 10	1	
R6001		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6002		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6004		ERJ3GEYJ332	CHIP 1/20W 3.3K	1	
R6005		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R6006,07		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6008,09		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R6010		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R6011		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6012		ERJ3GEYJ391	CHIP 1/20W 390	1	
R6014,15		ERJ3GEYJ103	CHIP 1/20W 10K	2	
R6017		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6018,19		ERJ6GMYJ391	CHIP 1/10W 390	2	
R6020		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6021-23		ERJ6GMYJ391	CHIP 1/10W 390	3	
R6024		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6025		ERJ6GMYJ391	CHIP 1/10W 390	1	
R6026		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6027		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6028		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6029		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6030		ERJ3GEYJ474	CHIP 1/20W 470K	1	
R6031		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6032,33		ERJ3GEYJ223	CHIP 1/20W 22K	2	
R6034		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R6035		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R6036		ERJ3GEYJ564	CHIP 1/20W 560K	1	
R6037		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R6038		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R6039		ERJ3GEYJ334	CHIP 1/20W 330K	1	
R6040		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6041		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6042		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6043		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6044		ERJ8GCYJ391	M.RESISTOR CH 1/8W 390	1	
R6045		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6046		ERJ3GEYJ563	CHIP 1/20W 56K	1	
R6047		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6048		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6049		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6050		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6051		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6052		ERJ6GMYJ270	CHIP 1/10W 27	1	
R6053		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R6054,55		ERJ3GEYJ562	CHIP 1/20W 5.6K	2	
R6056		ERJ8GCYJ181	M.RESISTOR CH 1/8W 180	1	
R6057		ERJ8GCYJ221	M.RESISTOR CH 1/8W 220	1	
R6058		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6059,60		ERJ3GEYJ224	CHIP 1/20W 220K	2	
R6061		ERJ3GEYJ393	CHIP 1/20W 39K	1	
R6062		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R6063		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6064		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R6065-67		ERJ3GEYJ103	CHIP 1/20W 10K	3	
R6068		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R6069		ERJ3GEYJ222	CHIP 1/20W 2.2K	1	
R6070		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6071		ERJ6GMYJ472	CHIP 1/10W 4.7K	1	
R6072		ERJ3GEYJ184	CHIP 1/20W 180K	1	
R6073		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6074		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6076		ERJ3GEYJ392	CHIP 1/20W 3.9K	1	
R6077		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R6079		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R6080		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R6082		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R6084,85		ERJ3GEYJ473	CHIP 1/20W 47K	2	
R6086		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R6087-91		ERJ3GEYJ102	CHIP 1/20W 1K	5	
R6092		ERJ3GEYJ473	CHIP 1/20W 47K	1	
R8002		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8003		ERJ3GEYJ122	CHIP 1/20W 1.2K	1	
R8004		ERJ3GEYJ271	CHIP 1/20W 270	1	
R8005		ERJ3GEYJ183	CHIP 1/20W 18K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
R8006		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8007		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8008		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8009		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8010		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R8011-13		ERJ3GEYJ102	CHIP 1/20W 1K	3	
R8014		ERJ3GEYJ333	CHIP 1/20W 33K	1	
R8015		ERJ3GEYJ682	CHIP 1/20W 6.8K	1	
R8016,17		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8018		ERJ3GEYJ390	CHIP 1/20W 39	1	
R8019		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8020		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8021		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8022		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R8023		ERJ3GEYJ102	CHIP 1/20W 1K	1	
R8024		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R8025,26		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8027		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8028		ERJ3GEYJ272	CHIP 1/20W 2.7K	1	
R8029		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R8030		ERJ8GCYJ470	CHIP 1/8W 47	1	
R8031		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8032		ERJ3GEYJ273	CHIP 1/20W 27K	1	
R8033		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R8034		ERJ3GEYJ821	CHIP 1/20W 820	1	
R8035		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8036		ERJ3GEYJ223	CHIP 1/20W 22K	1	
R8037		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8038		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8040		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8041		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R8042		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R8043		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R8046		ERJ3GEYJ123	CHIP 1/20W 12K	1	
R8047		ERJ3GEYJ562	CHIP 1/20W 5.6K	1	
R8048		ERJ3GEYJ105	CHIP 1/20W 1M	1	
R8049		ERJ3GEYJ560	CHIP 1/20W 56	1	
R8050		ERJ3GEYJ471	CHIP 1/20W 470	1	
R8051		ERJ3GEYJ183	CHIP 1/20W 18K	1	
R8052		ERJ3GEYJ822	CHIP 1/20W 8.2K	1	
R8054		ERJ3GEYJ472	CHIP 1/20W 4.7K	1	
R8055,56		ERJ3GEYJ102	CHIP 1/20W 1K	2	
R8057		ERJ3GEYJ182	CHIP 1/20W 1.8K	1	
R8058		ERJ3GEYJ152	CHIP 1/20W 1.5K	1	
R8059		ERJ3GEYJ221	CHIP 1/20W 220	1	
R8060		ERJ3GEYJ681	CHIP 1/20W 680	1	
R8061,62		ERJ3GEYJ471	CHIP 1/20W 470	2	
R8063		ERJ3GEYJ104	CHIP 1/20W 100K	1	
R8064		ERJ3GEYJ103	CHIP 1/20W 10K	1	
R8065		ERJ6GMYJ123	M.RESISTOR CH1/10W 12K	1	
R8066,67		ERJ3GEYJ563	CHIP 1/20W 56K	2	
S6001		ESD142127	SWITCH	1	<R>
T1001		ELL10R010	TRANSFORMER	1	
T4001		EIQ7QE007Q	TRANSFORMER	1	
VR1001		EVM7NSW00B53	V.RESISTOR 5K	1	
VR1002		EVM7NSX00B53	V.RESISTOR 5K	1	
VR1003		EVM7NSW00B53	V.RESISTOR 5K	1	
VR2001		EVM7NSW00B15	V.RESISTOR 100K	1	
VR3001-03		EVM7NSX00B54	V.RESISTOR 50K	3	
VR3004,05		EVM7NSX00B14	V.RESISTOR 10K	2	
VR3006		EVM7NSX00B23	V.RESISTOR 2K	1	
VR3007		EVM7NSX00B54	V.RESISTOR 50K	1	
VR3008		EVM7NSX00B24	V.RESISTOR 20K	1	
VR3009		EVM7NSX00B14	V.RESISTOR 10K	1	
VR3010		EVM7NSX00B54	V.RESISTOR 50K	1	
VR3012		EVM7NSX00B23	V.RESISTOR 2K	1	

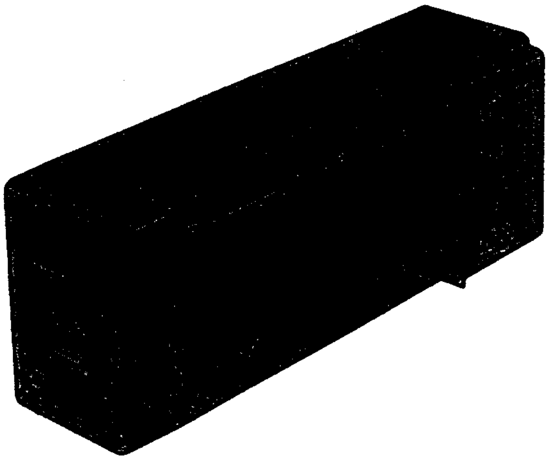
Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
VR4001		EVM7NSX00B23	V.RESISTOR 2K	1	
VR5001		EVM7NSX00B13	V.RESISTOR 1K	1	
VR6001		EVM7NSW00B23	V.RESISTOR 2K	1	
VR6002		EVM7NSX00B14	V.RESISTOR 10K	1	
VR8001		EVM7NSX00B13	V.RESISTOR 1K	1	
VR8002		EVM7NSX00B54	V.RESISTOR 50K	1	
X1001		VSX0136	CRYSTAL OSCILLATOR	1	<R>
X2001		VSX0154	CRYSTAL OSCILLATOR	1	<R>
X6001		VSX0140	CRYSTAL OSCILLATOR	1	<R>
X6002		VSX0249	CRYSTAL OSCILLATOR	1	<R>
X8001		VSX0132	CRYSTAL OSCILLATOR	1	<R>
			MISCELLANEOUS		
		VSC2181	HEAD AMP SHIELD CASE(MAIN)	1	
		VSC2180	HEAD AMP SHIELD CASE(TOP)	1	
		VSC1932	HEAD AMP SHIELD CASE	1	
			(BOTTOM)		
		VSC1358	POWER SHIELD CASE(BOTTOM)	1	
		VMZ0651	POWER SHIELD BARRIER	1	
	■	VEP03583A	SUB VIDEO C.B.A.		
			CAPACITORS		
C3801-04		ECUM1H103ZFN	CHIP 50V 0.01U	4	
C3805		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C3806		ECUM1H680JCN	CHIP 50V 68P	1	
C3807,08		ECUM1H103ZFN	CHIP 50V 0.01U	2	
C3809		ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3810-13		ECUM1H103ZFN	CHIP 50V 0.01U	4	
C3814		ECUM1E104ZFN	CHIP 25V 0.1U	1	
C3815		ECUM1H121JCN	CHIP 50V 120P	1	
C3836,37		ECUM1H103ZFN	CHIP 50V 0.01U	2	
C3839		ECUM1H103ZFN	CHIP 50V 0.01U	1	
C3840		ECEA0JKS220	E.CAPACITOR 6.3V 22U	1	
C3841		ECEA1EKK2R2	E.CAPACITOR 25V 2.2U	1	
C3851		ECUM1H820JCN	CHIP 50V 82P	1	
D3801		MA151K	DIODE	1	<R>
IC3801		BU3781F	IC	1	<R>
IC3802		M52055FP	IC	1	<R>
L3801		VLQEL05F101K	COIL 100UH	1	
L3802		VLQEL05F470K	COIL 47UH	1	
L3803		VLQEL05F101K	COIL 100UH	1	
L3809		VLQEL05F101K	COIL 100UH	1	
L3812		VLQEL05F180K	COIL 18UH	1	
P3802		VJP1599T	CONNECTOR(MALE) 6P	1	
P3803		VJP1604T	CONNECTOR(MALE)	1	
Q3801,02		2SD601	TRANSISTOR CHIP	2	(R,S)<R>
Q3804		2SC2404	TRANSISTOR	1	<R>
Q3810		XN4501	TRANSISTOR	1	<R>
Q3816		XN1401	TRANSISTOR	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q3817		2SD601	TRANSISTOR CHIP	1	(R,S)<R>
			RESISTORS		
R3801		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R3802		ERJ6GMYJ271	M.RESISTOR CH1/10W 270	1	
R3803		ERJ6GMYJ101	CHIP 1/10W 100	1	
R3804,05		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	2	
R3806		ERJ6GMYJ472	CHIP 1/10W 4.7K	1	
R3807		ERJ6GMYJ102	CHIP 1/10W 1K	1	
R3808		ERJ6GMYJ560	M.RESISTOR CH1/10W 56	1	
R3809,10		ERJ6GMYJ102	CHIP 1/10W 1K	2	
R3811		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R3812		ERJ6GMYJ332	CHIP 1/10W 3.3K	1	
R3813		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
R3846		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	1	
R3847		ERJ6GMYJ271	M.RESISTOR CH1/10W 270	1	
R3848		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
R3849		ERJ6GMYJ273	M.RESISTOR CH1/10W 27K	1	
R3851		ERJ6GMYJ222	CHIP 1/10W 2.2K	1	
R3852		ERJ6GMYJ224	CHIP 1/10W 220K	1	
R3853		ERJ6GMYJ101	CHIP 1/10W 100	1	
R3854		ERJ6GMYJ473	CHIP 1/10W 47K	1	
R3855-58		ERJ6GMYJ103	M.RESISTOR CH1/10W 10K	4	
R3866		ERJ6GMYJ223	M.RESISTOR CH1/10W 22K	1	
			MISCELLANEOUS		
		VSC2182	SUB HEAD AMP SHIELD CASE(1)	1	
		VSC2184	SUB HEAD AMP SHIELD CASE(2)	1	
		VMX1464	SHIELD UNIT	1	
	■	VEP06452A	OPERATION C.B.A.		
D6501-07		BR3668S	DIODE	7	<R>
D6508-19		MA165	DIODE	12	<R>
P6501		VJP1606T	CONNECTOR(MALE)	1	
P6502		VJP2107	CONNECTOR	1	
S6501		ESD100127	SWITCH	1	<R>
S6502-13		EVQQSB04B	SWITCH	12	<R>
S6514		VST0098	SWITCH	1	<R>
S6515,16		EVQQSB04B	SWITCH	2	<R>
	■	VEK3463	S-VHS CONNECTOR C.B.A.		
			MISCELLANEOUS		
		VJJ0162	S-VHS 4P CONNECTOR	1	
		VEE3754	VIDEO 4P CONNECTOR	1	
	■	VEK3464	START/STOP SW C.B.A.		
			MISCELLANEOUS		

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		EVQQSU04W	SWITCH	1	<R>
	■	VEK3462	ZOOM & SUB START/STOP		(NLA)
			SW C.B.A.		
			MISCELLANEOUS		
		EVQQV604W	SWITCH	1	<R>
		VMG0358	RUBBER SW	2	<R>
		VJP1607T	CONNECTOR(MALE) 3P	1	
	■	VEK3465	E.V.F. CONNECTOR C.B.A.		
			MISCELLANEOUS		
		VJJ0163	E.V.F. JACK	1	
		VJP1613T	CONNECTOR(MALE) 9P	1	
	■	VEP00H73B	FE HEAD C.B.A.		
			CAPACITORS		
C1501		ECEA1CKS100	E.CAPACITOR 16V 10U	1	
C1502		ECKF1H472ZF	C.CAPACITOR 50V 4700P	1	
C1503		VCYD1C103MR1	S.CAPACITOR 16V 0.01U	1	
C1504		ECQV1H333JZ	P.CAPACITOR 50V 0.033U	1	
L1501		VLQEL05F221K	COIL 220UH	1	
Q1504		2SC2603	TRANSISTOR	1	
R1503		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
T1501		EIQ7QT007Q	FILTER	1	
	■	VXA3076	SENSOR LED C.B.A.		
			MISCELLANEOUS		
		VMD0465	LED HOLDER	1	
		LN59NV	LED	1	<R>
	■	VEK3415	SUPPLY PHOTO C.B.A.		
			MISCELLANEOUS		
		PN158NVNC	PHOTO TR.	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VMD0607	PHOTO HOLDER	1	
		VSH0026	LEAF SWITCH	1	<R>
	■	VEK3414	TAKE-UP PHOTO C.B.A.		
			MISCELLANEOUS		
		PN158NV	PHOTO TR.	1	<R>
		VMD0605	PHOTO HOLDER	1	
	■	VEK3621	14P REMOTE CONTROL C.B.A.		
			MISCELLANEOUS		
		VJJ0125	REMOCON JACK	1	
		VEE4074	14P MULTI CONNECTOR	1	
	■	VES0413	MECHANISM CONNECTION C.B.A.		
			MISCELLANEOUS		
		VMX1280	SENSOR SPACER	1	
		ON2170	TRANSISTOR	1	<R>
		VSS0193	MODE SWITCH	1	<R>
		VJP1235T	CONNECTOR(MALE) 8P	1	
		VJP1229R	CONNECTOR(MALE) 2P	1	

AC Adaptor
(VW-AM7 E/EG B/BA A/EA)



ITEM	SPECIFICATION	ITEM	SPECIFICATION
POWER	SOURCE: 100~240V AC 50/60Hz (Automatic Voltage Adjustment)	RF OUT SYSTEM	VHF: CH3/4, 76±3dBμ, 75Ω unbalanced PAL B (VW-AM7EA) UHF: CH36±4, 70^{+2}_{-3}dBμ, 75Ω unbalanced PAL G (VW-AM7E/EG) VHF: CH0/1, 76±3dBμ, 75Ω unbalanced PAL B (VW-AM7A) UHF: CH36±4, 73±3dBμ, 75Ω unbalanced PAL I (VW-AM7B/BA)
	CONSUMPTION: 44 watts		
	OUTPUT: DC 12V, 1.2A for VHS Movie DC 20V, 0.1A for Heater DC 12V, 1.5A for battery charge		
VIDEO	OUTPUT: VIDEO OUT CONNECTOR (BNC) 1.0Vp-p, 75Ω terminated	DIMENSIONS	63(W)×84(H)×220(D)mm
AUDIO	OUTPUT: AUDIO OUT CONNECTOR (Phone Type) −8dB, less than 2kΩ	WEIGHT	0.86kg

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

CAUTION: FOR USE WITH S-VHS VIDEO MOVIE, MODEL AG-450

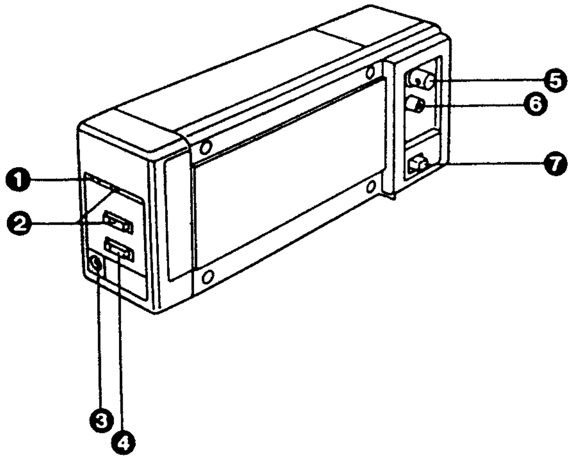
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CONTENTS

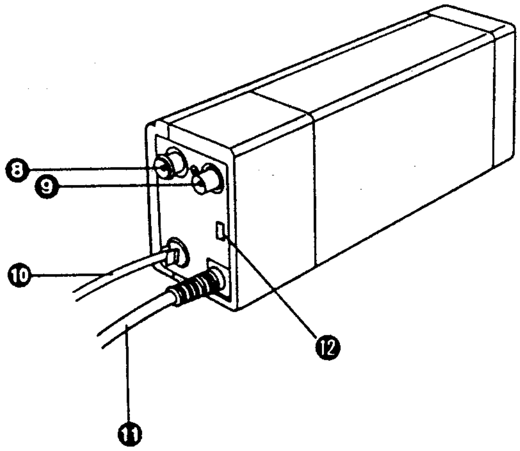
1. CONTROLS AND COMPONENTS 1
2. DISASSEMBLY METHOD 1
3. ELECTRICAL ADJUSTMENT PROCEDURES 2
4. AC ADAPTOR BLOCK DIAGRAM 4
5. AC ADAPTOR SCHEMATIC DIAGRAM 6
6. MAIN C.B.A. (VEP61013A), FRONT PANEL C.B.A. (VEP60052A) & A-V TERMINAL C.B.A. (VEP60054A) 9
7. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7E/EG) 10
8. RF CONVERTER C.B.A. (ENC47956: VW-AM7E/EG) 10
9. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7B/BA) 11
10. RF CONVERTER C.B.A. (ENC47957: VW-AM7B/BA) 11
11. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7EA) 12
12. RF CONVERTER C.B.A. (ENC47901: VW-AM7EA) 12
13. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7A) 13
14. RF CONVERTER C.B.A. (ENC47902: VW-AM7A) 13
15. EXPLODED VIEWS 14
    1. CHASSIS & FRAME SECTION 14
16. REPLACEMENT PARTS LIST 15

1. CONTROLS AND COMPONENTS

FRONT SIDE



REAR SIDE



- ❶ Charging Indicator
- ❷ Operation Switch with Indicator
- ❸ Battery Pack Charging Socket
- ❹ TV/VTR Selector
- ❺ Video Output Socket
- ❻ Audio Output Socket
- ❼ Power On/Off Switch
- ❽ RF Input Socket
- ❾ RF Output Socket
- ❿ Mains Lead
- ⓫ Adaptor Cable
- ⓬ CH Select (for A/EA)

2. DISASSEMBLY METHOD

1. Removal of Top Case

Unscrew the 4 screws (A) and remove the Top Case.

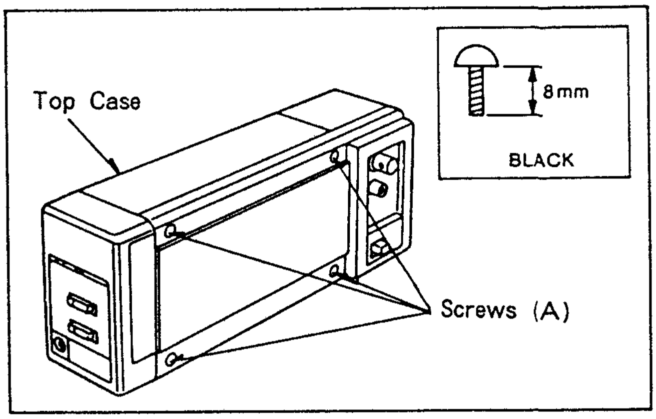

Top Case
8mm
BLACK
Screws (A)

Fig.1

2. Removal of Front Panel

Remove the Front Panel disconnecting the connector P1.

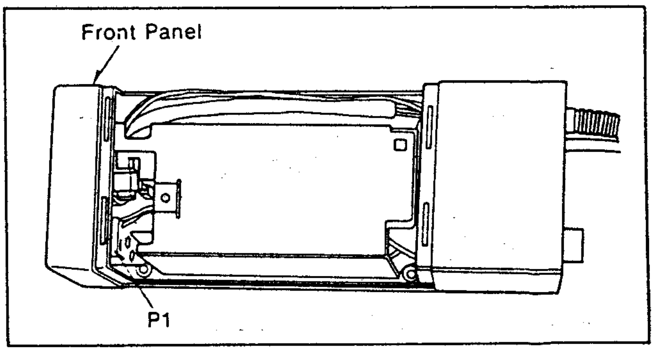

Front Panel
P1

Fig.2

3. Removal of Main Circuit Board

Unscrew the 2 screws (B) and remove the Main Circuit Board.

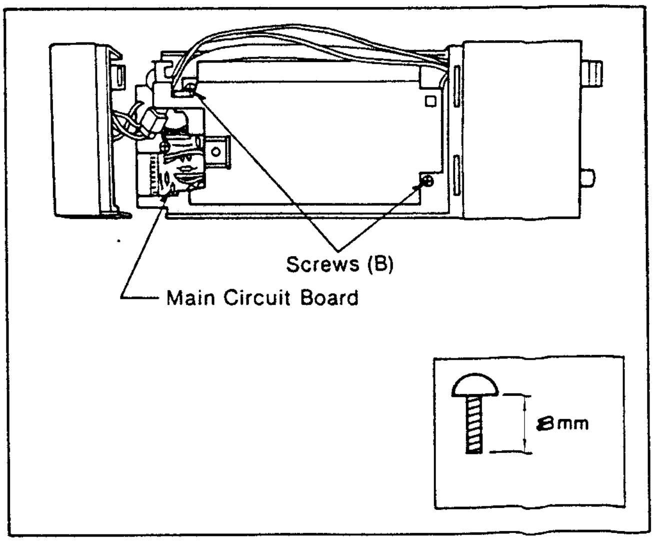

Screws (B)
Main Circuit Board
8mm

Fig.3

4. Removal of Rear Case

Unscrew the 3 screws (C) remove the Rear Case.

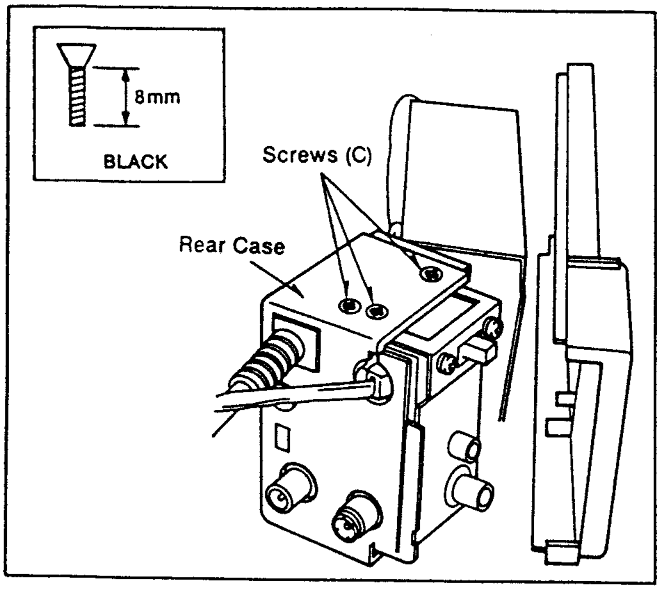

8mm
BLACK
Screws (C)
Rear Case

Fig.4

5. Removal of Main Sield Case

Diconnect the connector P6 and connector (E) and remove the Main Shield Case.

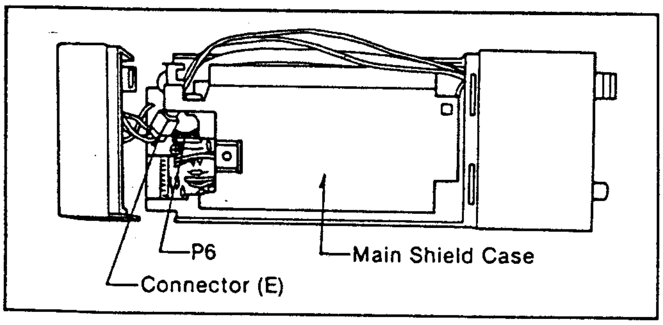

P6
Main Shield Case
Connector (E)

Fig.5

6. Removal of Front Panel Circuit Board

Unscrew the 2 screws (F) and remove the Front Panel Circuit Board.

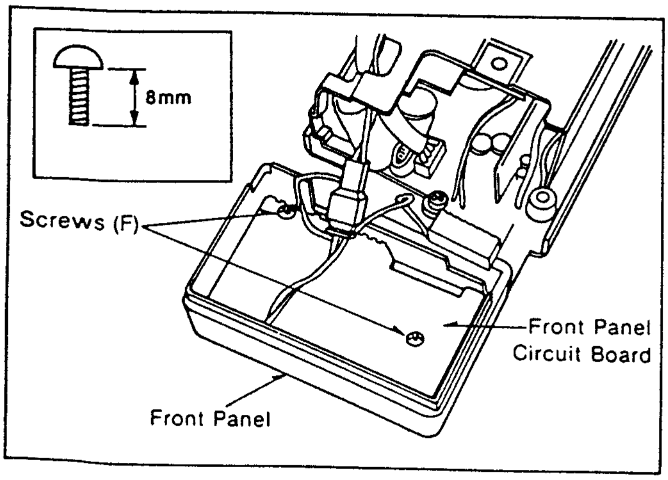

8mm
Screws (F)
Front Panel Circuit Board
Front Panel

Fig.6

7. Removal of A–V Terminal Circuit Board

Remove shield case and unscrew the 2 screws (G) and remove the A–V Terminal Circuit Board.

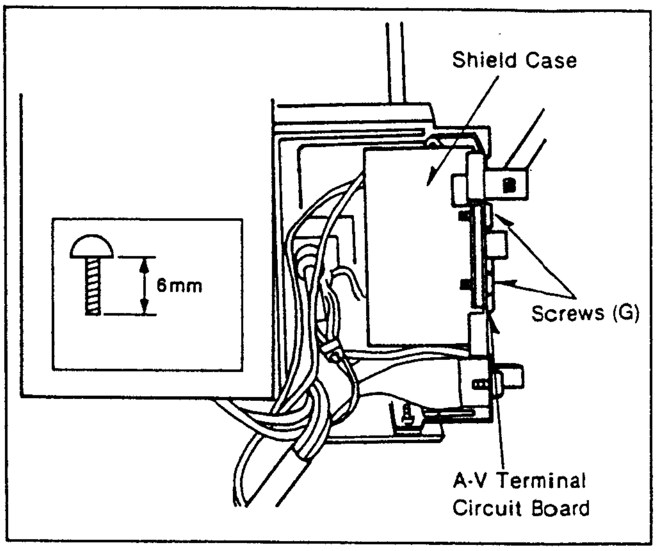

Shield Case
6mm
Screws (G)
A-V Terminal
Circuit Board

Fig.7

3. ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electronic circuit of the AC Adaptor.

3-1. TEST EQUIPMENTS

To perform the electrical adjustments completely following equipments are required.

1. D.V.M. (Digital Volt Meter)
   Voltage Range :0.001～50V
2. Oscilloscope
   Voltage Range :0.005～50V/div
3. DC Ammeter
   Current Range :0～10A
4. DC Voltmeter
   Voltage Range :0～20V
5. Plastic Tip Driver
6. Resistor (5ohm Variable 200W)
7. DC Power Supply (5A/20V)

3-2. POWER SUPPLY OUTPUT VOLTAGE ADJUSTMENT

TP	ADJ.	MODE	INPUT
CONNECTOR P6-(1) (+) -(3) (−)	VR101	POWER SUPPLY	
TAPE	M. EQ.	SPEC.	
	D.V.M.	13.0+−0.3V	

1. Connect the VHS MOVIE to AC Adaptor.
2. Turn the unit in REC−PLAY mode.
3. Adjust VR101 so that the output voltage at pin 1 of connector P6 is within specification.

3-3. INITIAL CHARGE CURRENT AND SCHMITT VOLTAGE ADJUSTMENT

TP	ADJ.	MODE	INPUT
BATTERY HOLDER-(+) -(−)	VR102 VR103	CHARGE	
TAPE	M. EQ.	SPEC.	
	DC AM/D.V.M	A=1.5+−0.005[A] VR102 From High to Low VR103	

1. Make the connection as shown below.

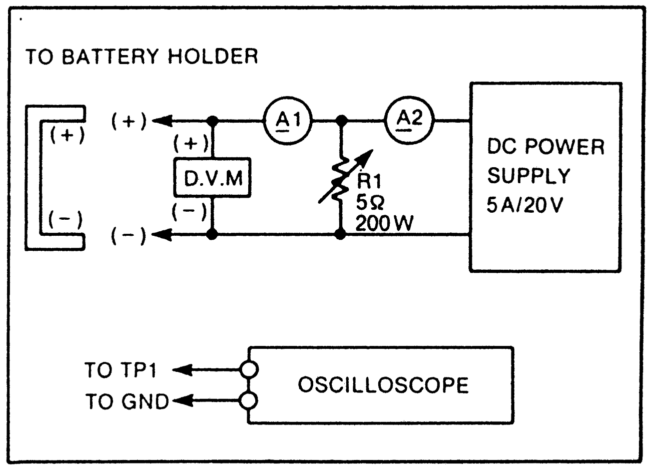
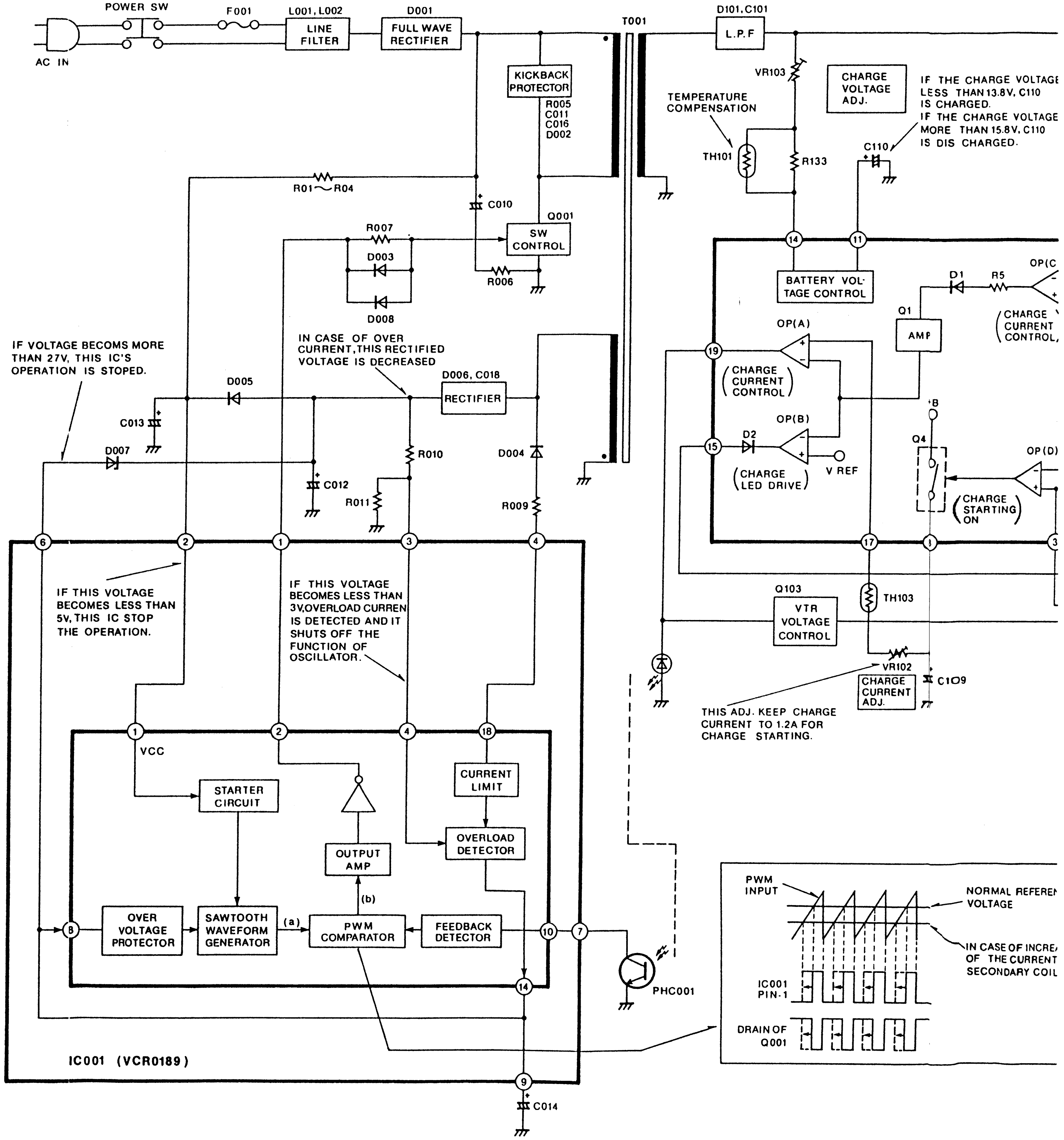

TO BATTERY HOLDER
(+)
(−)
(+)
(−)
A1
A2
(+)
D.V.M
(−)
R1
5Ω
200W
DC POWER
SUPPLY
5A/20V
TO TP1
TO GND
OSCILLOSCOPE

Fig.8

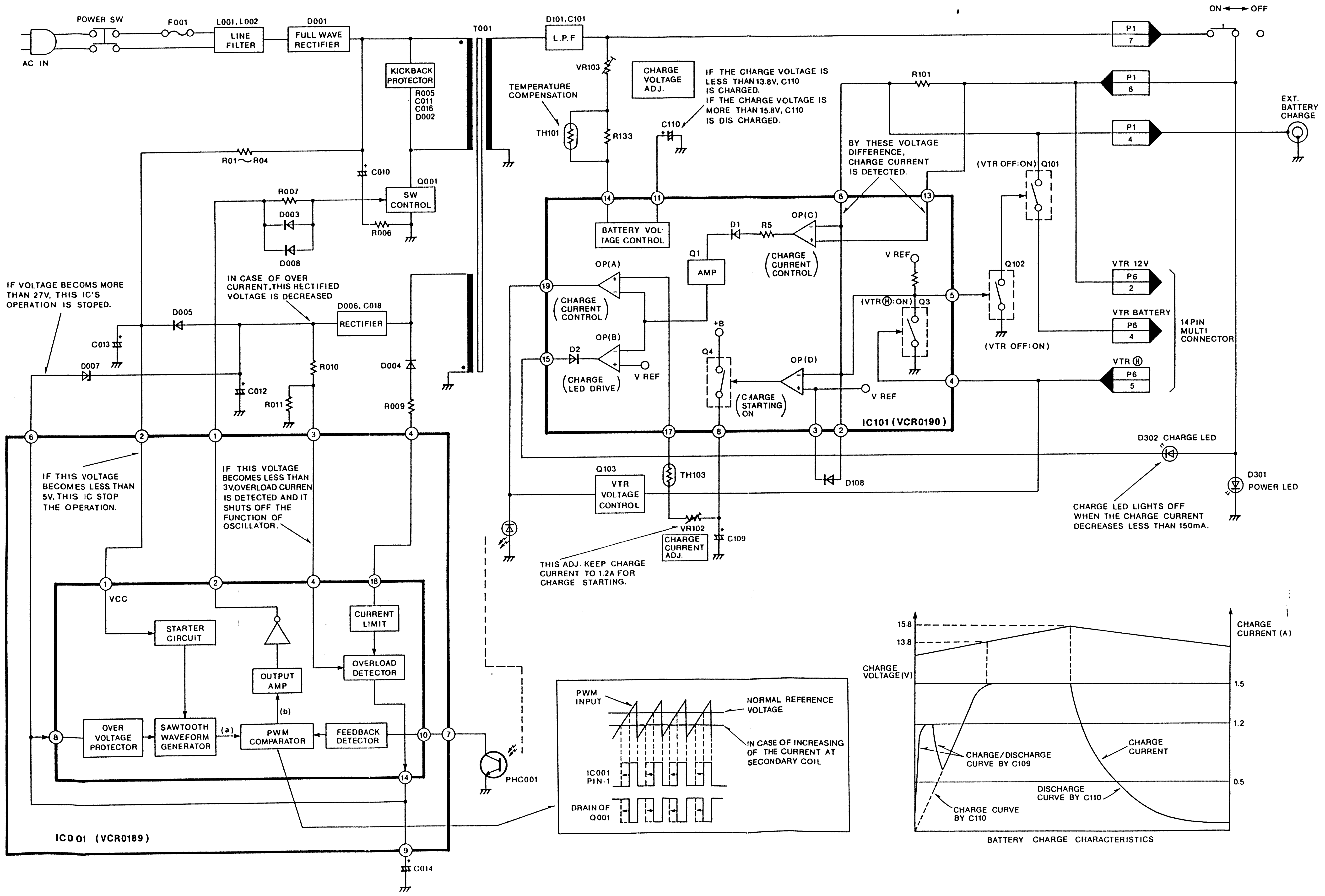
2. Adjust the output of the DC power supply so that the indication of the DC voltmeter becomes 14.0V and adjust R1 so that the indication of the DC ammeter (A2) becomes 3.0A.
3. Adjust VR102 so that the indication of the DC ammeter (A1) becomes 1.5+−0.05A.
4. Adjust the output level of the DC power supply to 15.3V.
5. Adjust the VR103 so that voltage at TP101 is changed from high (approx.15V) to low (approx.0.5).

It is also available to use a resistor 5ohm/50W or 2 pieces of 10ohm/20W resistors inparallel use or equevalent, instead of variable resistor, 5ohm/200W to get specified current.

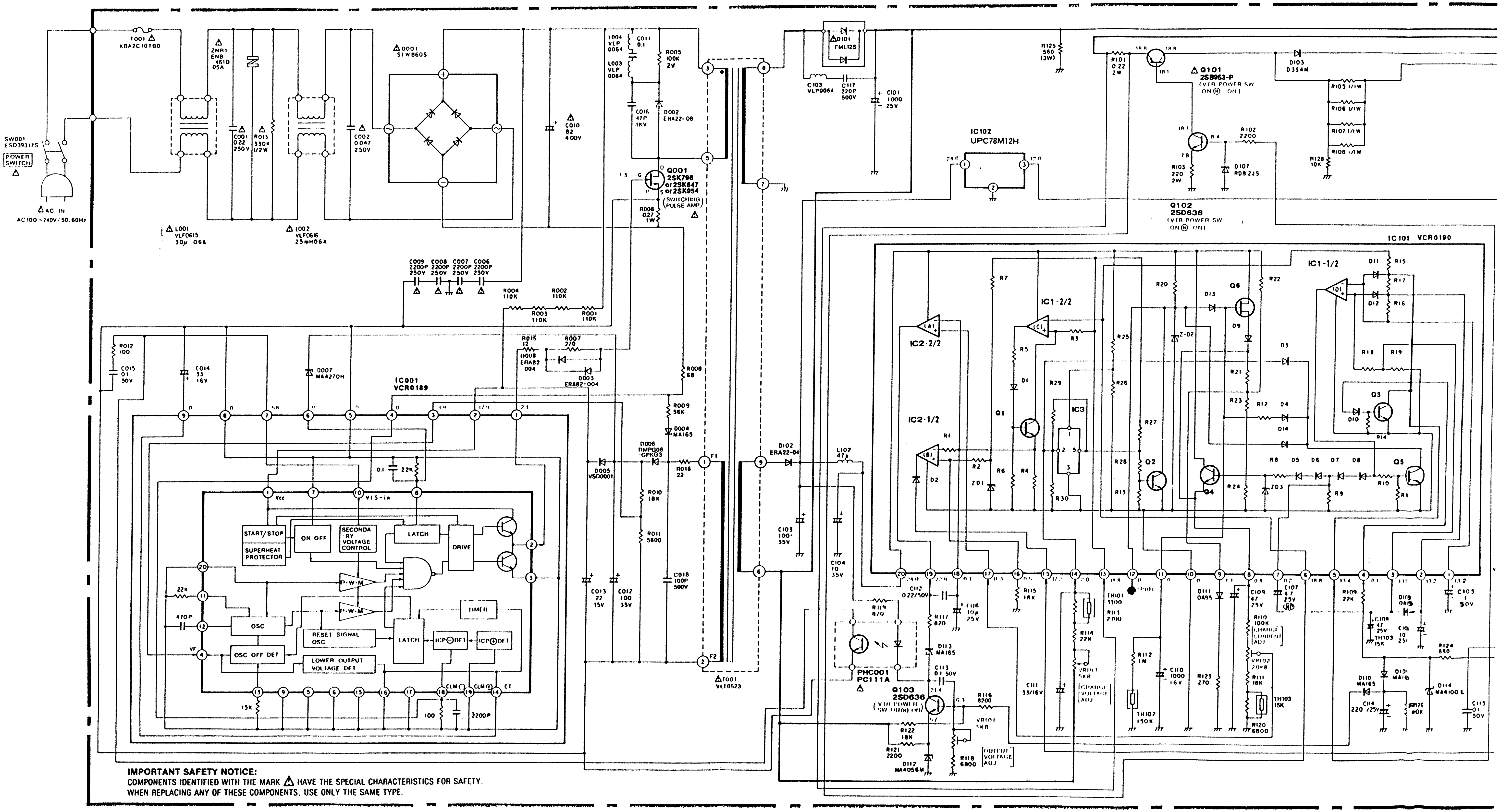
4. AC ADAPTOR BLOCK DIAGRAM


POWER SW
AC IN
F001
L001, L002
LINE FILTER
D001
FULL WAVE RECTIFIER
T001
KICKBACK PROTECTOR
R005
C011
C016
D002
R01～R04
C010
Q001
SW CONTROL
R007
D003
R006
D008
IN CASE OF OVER CURRENT, THIS RECTIFIED VOLTAGE IS DECREASED
D006, C018
RECTIFIER
IF VOLTAGE BECOMES MORE THAN 27V, THIS IC'S OPERATION IS STOPED.
D005
C013
D007
C012
R011
R010
D004
R009
IF THIS VOLTAGE BECOMES LESS THAN 5V, THIS IC STOP THE OPERATION.
IF THIS VOLTAGE BECOMES LESS THAN 3V, OVERLOAD CURREN IS DETECTED AND IT SHUTS OFF THE FUNCTION OF OSCILLATOR.
VCC
STARTER CIRCUIT
CURRENT LIMIT
OUTPUT AMP
OVERLOAD DETECTOR
(b)
(a)
OVER VOLTAGE PROTECTOR
SAWTOOTH WAVEFORM GENERATOR
PWM COMPARATOR
FEEDBACK DETECTOR
IC001 (VCR0189)
C014
PHC001
D101, C101
L.P.F
VR103
TEMPERATURE COMPENSATION
TH101
R133
CHARGE VOLTAGE ADJ.
C110
IF THE CHARGE VOLTAGE LESS THAN 13.8V, C110 IS CHARGED.
IF THE CHARGE VOLTAGE MORE THAN 15.8V, C110 IS DIS CHARGED.
BATTERY VOLTAGE CONTROL
OP(A)
CHARGE CURRENT CONTROL
OP(B)
D2
CHARGE LED DRIVE
V REF
D1
R5
OP(C
Q1
AMP
CHARGE CURRENT CONTROL
+B
Q4
OP(D)
CHARGE STARTING ON
Q103
VTR VOLTAGE CONTROL
TH103
VR102
CHARGE CURRENT ADJ.
C109
THIS ADJ. KEEP CHARGE CURRENT TO 1.2A FOR CHARGE STARTING.
PWM INPUT
NORMAL REFERE
VOLTAGE
IN CASE OF INCRE
OF THE CURRENT
SECONDARY COIL
IC001 PIN-1
DRAIN OF Q001

4. AC ADAPTOR BLOCK DIAGRAM


POWER SW
AC IN
F001
L001, L002
LINE FILTER
D001
FULL WAVE RECTIFIER
T001
KICKBACK PROTECTOR
R005
C011
C016
D002
R01 ~ R04
C010
Q001
SW CONTROL
R007
D003
R006
D008
IF VOLTAGE BECOMS MORE THAN 27V, THIS IC'S OPERATION IS STOPED.
IN CASE OF OVER CURRENT, THIS RECTIFIED VOLTAGE IS DECREASED
D005
D006, C018
RECTIFIER
C013
D007
C012
R010
R011
D004
R009
IF THIS VOLTAGE BECOMES LESS THAN 5V, THIS IC STOP THE OPERATION.
IF THIS VOLTAGE BECOMES LESS THAN 3V, OVERLOAD CURREN IS DETECTED AND IT SHUTS OFF THE FUNCTION OF OSCILLATOR.
VCC
STARTER CIRCUIT
CURRENT LIMIT
OVERLOAD DETECTOR
OUTPUT AMP
(b)
(a)
OVER VOLTAGE PROTECTOR
SAWTOOTH WAVEFORM GENERATOR
PWM COMPARATOR
FEEDBACK DETECTOR
IC0 01 (VCR0189)
C014
PHC001
D101, C101
L.P.F
VR103
CHARGE VOLTAGE ADJ.
IF THE CHARGE VOLTAGE IS LESS THAN 13.8V, C110 IS CHARGED.
IF THE CHARGE VOLTAGE IS MORE THAN 15.8V, C110 IS DIS CHARGED.
TEMPERATURE COMPENSATION
TH101
R133
C110
BY THESE VOLTAGE DIFFERENCE, CHARGE CURRENT IS DETECTED.
R101
BATTERY VOLTAGE CONTROL
OP(C)
D1
R5
Q1
AMP
(CHARGE CURRENT CONTROL)
OP(A)
(CHARGE CURRENT CONTROL)
OP(B)
D2
(CHARGE LED DRIVE)
V REF
+B
Q4
OP(D)
(CHARGE STARTING ON)
V REF
(VTR Ⓗ: ON) Q3
IC101 (VCR0190)
(VTR OFF:ON) Q101
Q102
(VTR OFF:ON)
Q103
VTR VOLTAGE CONTROL
TH103
D108
VR102
CHARGE CURRENT ADJ.
C109
THIS ADJ. KEEP CHARGE CURRENT TO 1.2A FOR CHARGE STARTING.
ON ← → OFF
P1 7
P1 6
P1 4
EXT. BATTERY CHARGE
VTR 12V
P6 2
VTR BATTERY
P6 4
VTR Ⓗ
P6 5
14 PIN MULTI CONNECTOR
D302 CHARGE LED
D301 POWER LED
CHARGE LED LIGHTS OFF WHEN THE CHARGE CURRENT DECREASES LESS THAN 150mA.
PWM INPUT
NORMAL REFERENCE VOLTAGE
IN CASE OF INCREASING OF THE CURRENT AT SECONDARY COIL
IC001 PIN-1
DRAIN OF Q001
CHARGE VOLTAGE (V)
15.8
13.8
CHARGE CURRENT (A)
1.5
1.2
0.5
CHARGE/DISCHARGE CURVE BY C109
CHARGE CURRENT
DISCHARGE CURVE BY C110
CHARGE CURVE BY C110
BATTERY CHARGE CHARACTERISTICS

5. AC ADAPTOR SCHEMATIC DIAGRAM


SW001
ESD39317S
POWER SWITCH
AC IN
AC100~240V/50,60Hz
F001
XBA2C10TB0
ZNR1
ENB 461D 05A
C001
0.22 250V
R013
330K 1/2W
L001
VLF0615
30µ 06A
L002
VLF0616
25mH06A
C002
0.047 250V
D001
S1WB60S
C010
82 400V
L004
VLP 0064
L003
VLP 0064
C011
0.1
R005
100K 2W
C016
47P 1KV
D002
ERA22-08
Q001
2SK796
or 2SK847
or 2SK954
(SWITCHING PULSE AMP)
R006
0.27 1W
C009 2200P 250V
C008 2200P 250V
C007 2200P 250V
C006 2200P 250V
R004 110K
R003 110K
R002 110K
R001 110K
R012 100
C015 .01 50V
C014 33 16V
D007 MA4270H
IC001
VCR0189
R015 12
R007 270
D008 ERA82-004
D003 ERA82-004
R008 68
R009 56K
D004 MA165
D006 RMPG06-GPKG3
R016 22
D005 VSD0001
R010 18K
R011 5600
C013 22 35V
C012 100 35V
C018 100P 500V
START/STOP
SUPERHEAT PROTECTOR
ON OFF
SECONDARY VOLTAGE CONTROL
LATCH
DRIVE
P·W·M
OSC
OSC OFF DET
TIMER
RESET SIGNAL OSC
LATCH
ICP⊖DFT
ICP⊕DFT
LOWER OUTPUT VOLTAGE DET
Vcc
V15-in
22K
470P
VF
15K
100
2200P
CLM⊖
CLM⊕
CT
0.1
T001
VLT0523
F1
F2
D101
FML12S
C103
VLP0064
C117
220P 500V
C101
1000 25V
D102
ERA22-04
L102
47µ
C103
100 35V
C104
10 35V
IC102
UPC78M12H
R125
560 (3W)
R101
0.22 2W
Q101
2SB953-P
(VTR POWER SW ON⊕ ON)
D103
D3S4M
R105 1/1W
R106 1/1W
R107 1/1W
R108 1/1W
R128 10K
R102 2200
R103 220 2W
D107 RD8.2JS
Q102
2SD638
(VTR POWER SW ON⊕ ON)
IC101 VCR0190
IC1-1/2
IC1-2/2
IC2-2/2
IC2-1/2
IC3
Q1
Q2
Q3
Q4
Q5
Q6
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
ZD1
ZD2
ZD3
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
C112
0.22/50V
R119
820
R117
820
C116
10µ 25V
D113
MA165
C113
0.1 50V
PHC001
PC111A
Q103
2SD636
(VTR POWER SW ON⊕ ON)
R116
8200
R122
18K
R121
2200
D112
MA4056M
R118
6800
VR101
5KB
OUTPUT VOLTAGE ADJ
C111
33/16V
R115
18K
TH101
3300
R113
2700
R114
22K
VR103
5KB
CHARGE VOLTAGE ADJ
R112
1M
C110
1000 16V
TH102
150K
D111
OA95
R123
270
C109
47 25V
R110
100K
CHARGE CURRENT ADJ
VR102
20KB
R111
18K
R120
6800
TH103
15K
C107
4.7 25V
R109
22K
D115
OA95
C108
47 25V
TH103
15K
C106
10 25V
C105
1 50V
R124
680
D110
MA165
D101
MA165
D114
MA4100L
C114
220/25V
R126
80K
C115
.01 50V

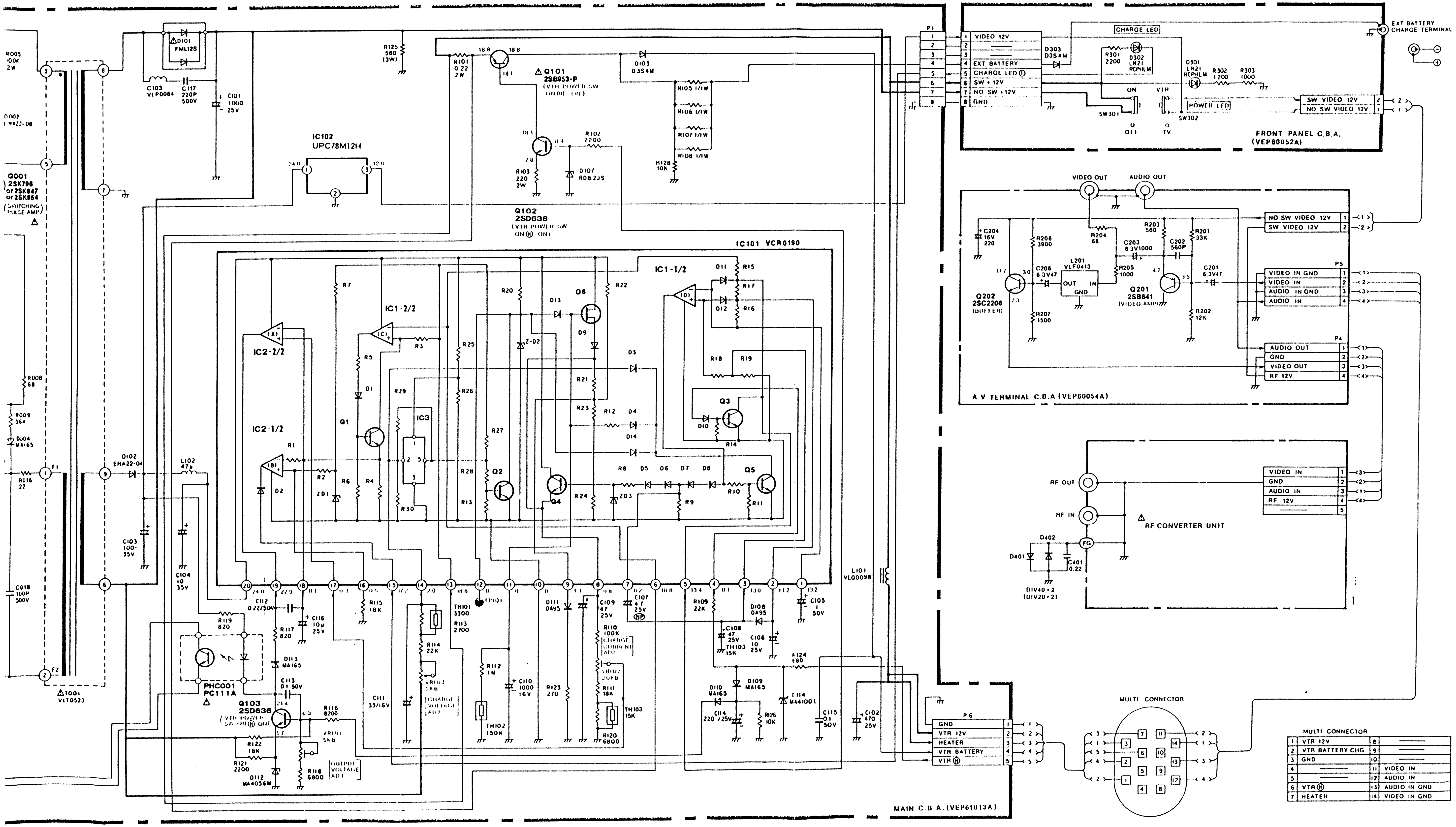
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

NOTE: DO NOT USE THE PART NUMBER SHOWN ON THIS DRAWING FOR ORDERING. THE CORRECT PART NUMBER IS SHOWN IN THE PARTS LIST, AND MAY BE SLIGHTLY DIFFERENT OR AMENDED SINCE THIS DRAWING WAS PREPARED.

NOTE 1. WHEN MEASURE THE VOLTAGE OF THE AC ADAPTOR, CONNECT THE PROBE (EARTH SIDE) OF MEASURING EQUIPMENT AS FOLLOWS.
PRIMARY SIDE .... MAIN C.B.A. C010 ⊖
SECONDARY SIDE...... AC ADAPTOR CHASSIS EARTH

NOTE 2. THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS MEASURED WHEN INPUT AC 220V IS APPLIED.

NOTE 3.

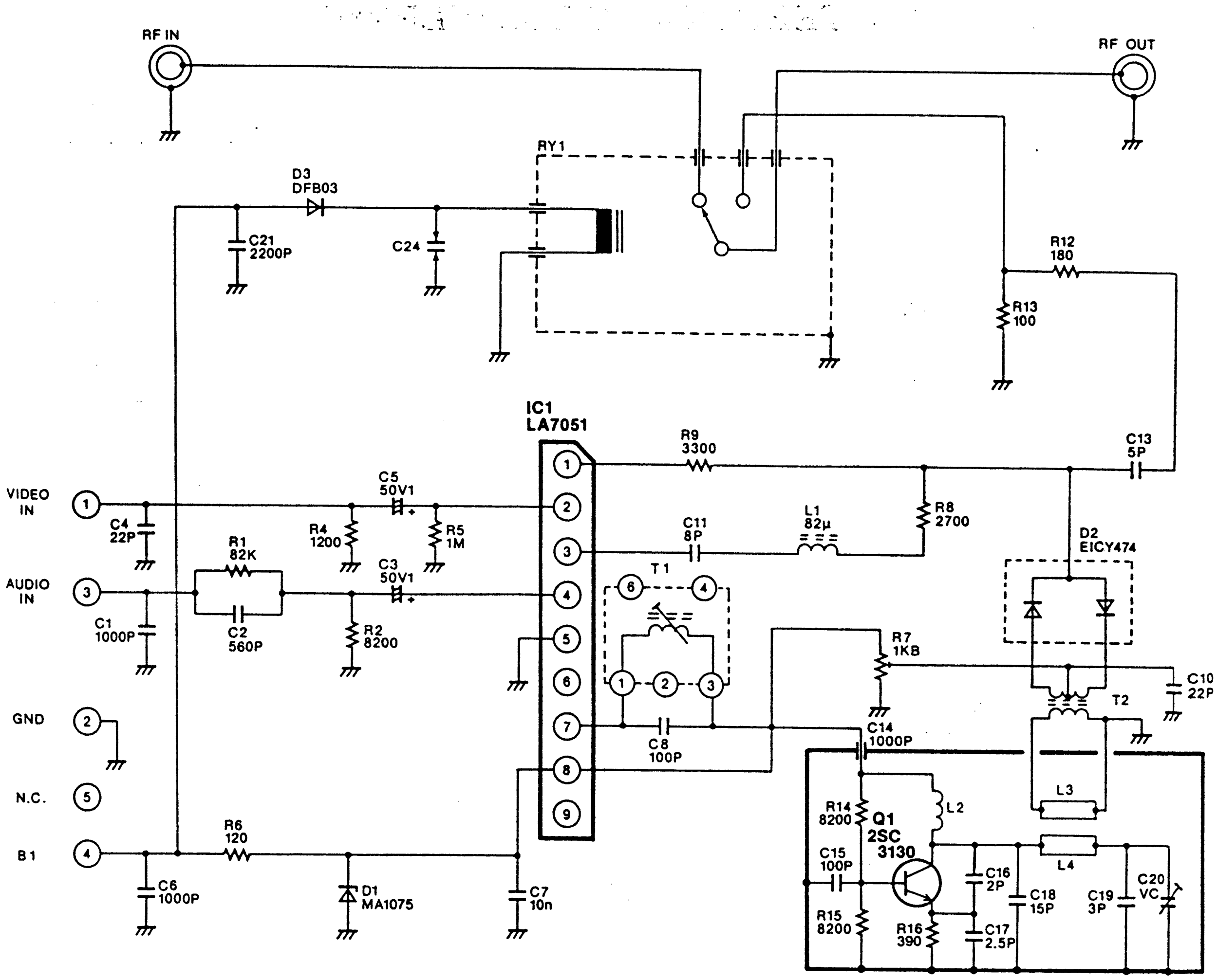

IC101 VCR0190
IC102 UPC78M12H
Q101 2SB953-P (VTR POWER SW ON(H) ON)
Q102 2SD638 (VTR POWER SW ON(H) ON)
Q103 2SD636 (VTR POWER SW ON(H) ON)
Q001 2SK798 or 2SK847 or 2SK954 (SWITCHING PULSE AMP)
D101 FML12S
D102 ERA22-04
D103 D3S4M
D107 RD8.2JS
PHC001 PC111A
T001 VLT0523
L101 VLQ0098
IC1-1/2
IC1-2/2
IC2-1/2
IC2-2/2
IC3
R110 100K CHARGE CURRENT ADJ
VR103 5K CHARGE VOLTAGE ADJ
VR101 5K OUTPUT VOLTAGE ADJ
TH101 3300
TH102 150K
TH103 15K
P1
VIDEO 12V
EXT BATTERY
CHARGE LED
SW +12V
NO SW +12V
GND
CHARGE LED
D303 D3S4M
D302 LN21 RCPHLM
D301 LN21 RCPHLM
SW301 ON OFF
SW302 VTR TV
POWER LED
SW VIDEO 12V
NO SW VIDEO 12V
EXT BATTERY CHARGE TERMINAL
FRONT PANEL C.B.A. (VEP60052A)
VIDEO OUT
AUDIO OUT
Q202 2SC2206 (BUFFER)
Q201 2SB641 (VIDEO AMP)
L201 VLF0413
P5
VIDEO IN GND
VIDEO IN
AUDIO IN GND
AUDIO IN
P4
AUDIO OUT
GND
VIDEO OUT
RF 12V
A-V TERMINAL C.B.A (VEP60054A)
RF OUT
RF IN
FG
D401
D402
C401 0.22
DIV40×2 (DIV20×2)
RF CONVERTER UNIT
VIDEO IN
GND
AUDIO IN
RF 12V
P6
GND
VTR 12V
HEATER
VTR BATTERY
VTR (H)
MAIN C.B.A. (VEP61013A)
MULTI CONNECTOR
MULTI CONNECTOR
1 VTR 12V
2 VTR BATTERY CHG
3 GND
6 VTR (H)
7 HEATER
11 VIDEO IN
12 AUDIO IN
13 AUDIO IN GND
14 VIDEO IN GND

NOTE 1. WHEN MEASURE THE VOLTAGE OF THE AC ADAPTOR, CONNECT THE PROBE (EARTH SIDE) OF MEASURING EQUIPMENT AS FOLLOWS.
PRIMARY SIDE .... MAIN C.B.A. C010 ⊖
SECONDARY SIDE...... AC ADAPTOR CHASSIS EARTH

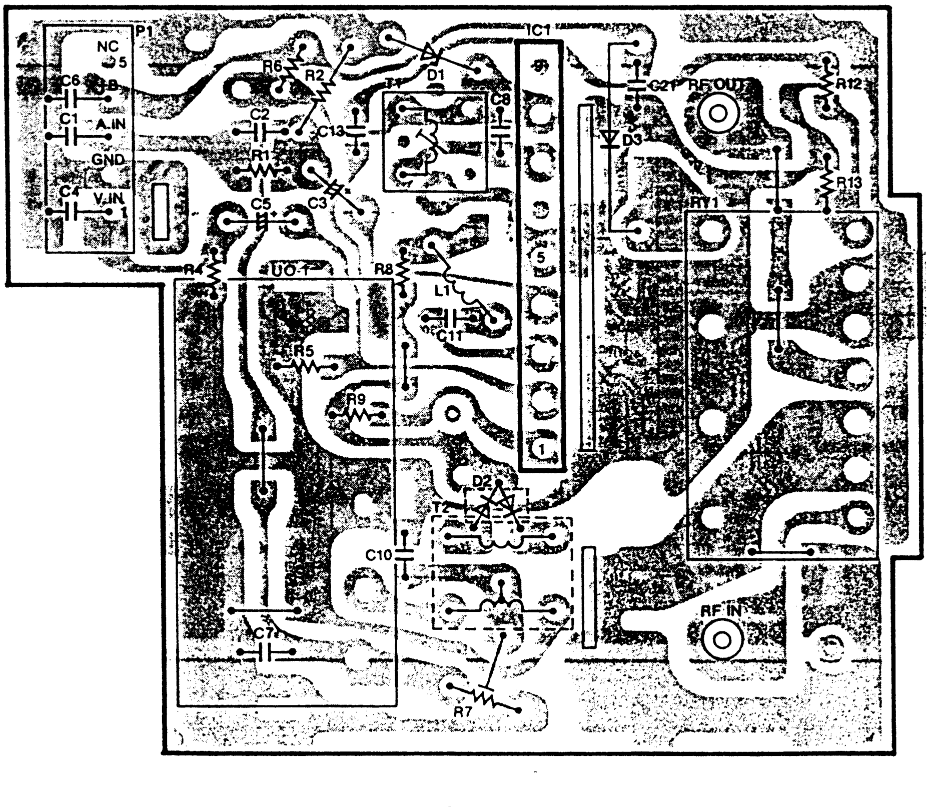
NOTE 2. THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS MEASURED WHEN INPUT AC 220V IS APPLIED.

NOTE 3. THE MEASUREMENT MODE OF DC VOLTAGE ON THIS DIAGRAM IS NOLOAD.

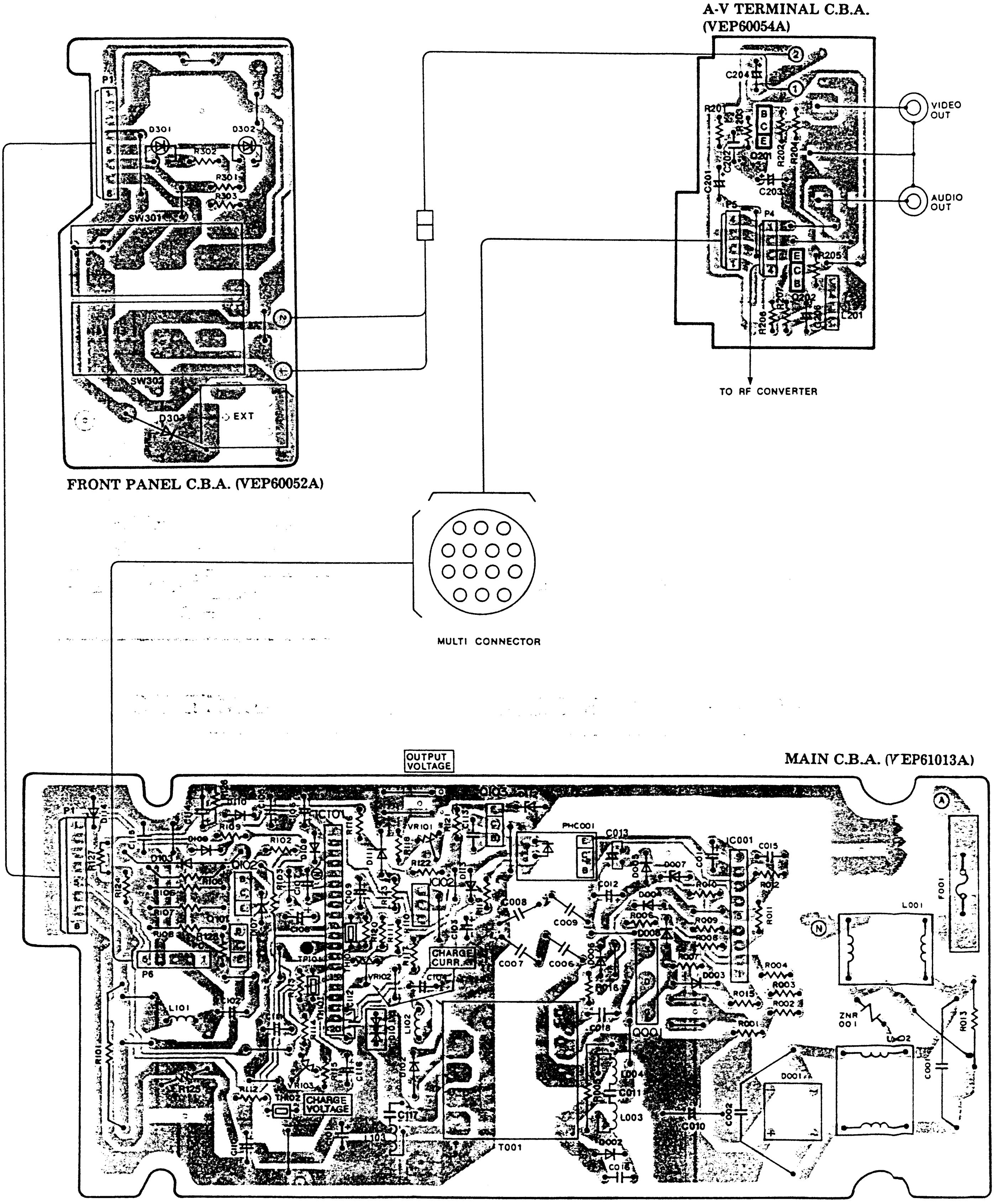
7. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7E/EG)


RF IN
RF OUT
RY1
D3
DFB03
C21
2200P
C24
R12
180
R13
100
IC1
LA7051
R9
3300
C13
5P
VIDEO IN
①
C4
22P
R4
1200
C5
50V1
R5
1M
C11
8P
L1
82μ
R8
2700
D2
EICY474
AUDIO IN
③
R1
82K
C2
560P
C3
50V1
R2
8200
C1
1000P
T1
R7
1KB
C10
22P
T2
GND
②
C8
100P
C14
1000P
N.C.
⑤
R14
8200
Q1
2SC
3130
L2
L3
B1
④
R6
120
C15
100P
L4
C16
2P
C18
15P
C19
3P
C20
VC
C6
1000P
D1
MA1075
C7
10n
R15
8200
R16
390
C17
2.5P

8. RF CONVERTER C.B.A. (ENC47956: VW-AM7E/EG)

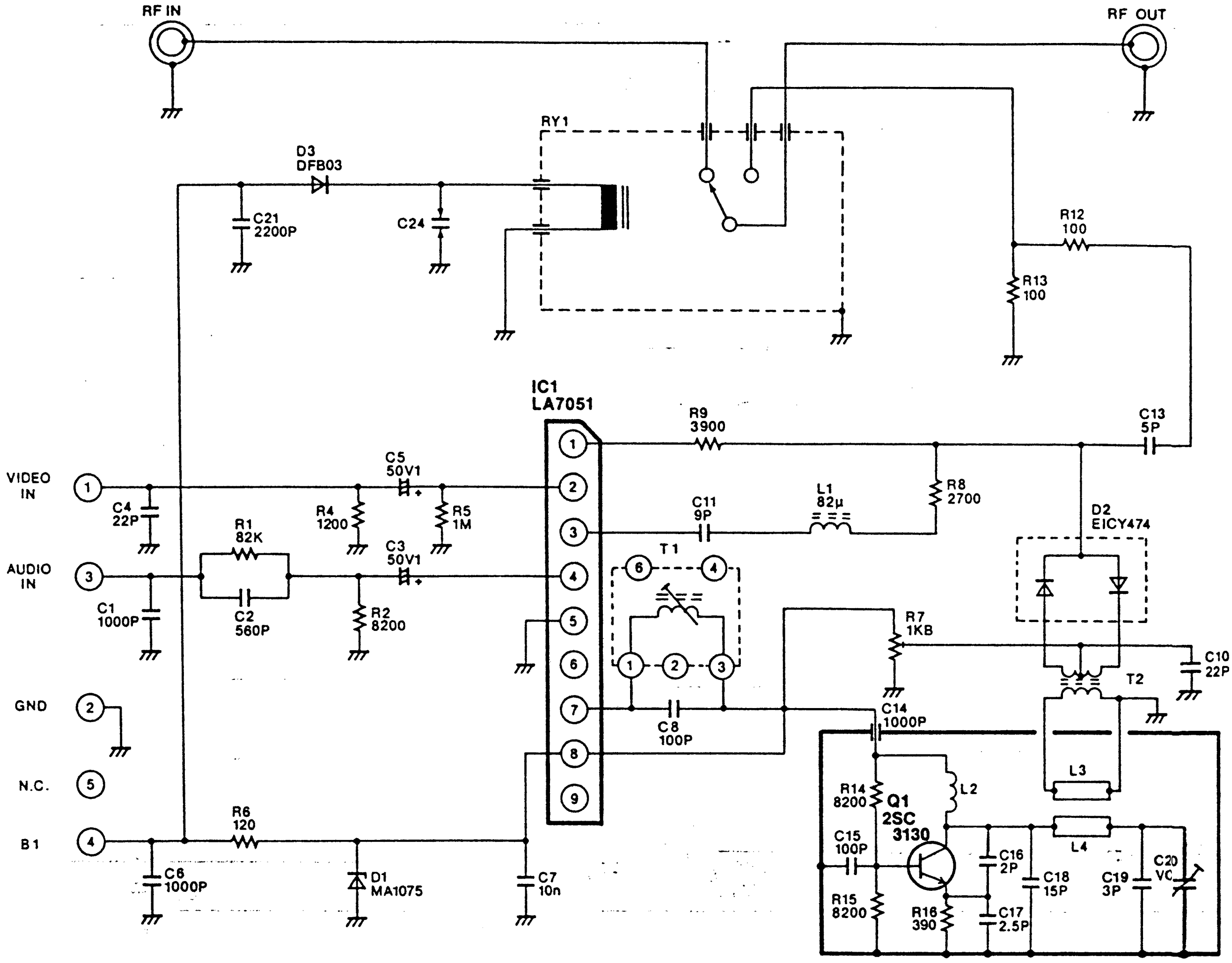

P1
NC
5
C6
B
C1
A.IN
GND
C4
V.IN
1
R6
R2
D1
T1
C8
IC1
C2
C13
R1
C5
C3
C21
RF OUT
D3
R12
R13
RY1
R4
UO-1
R8
L1
C11
R5
R9
5
1
D2
T2
C10
C7
R7
RF IN

6. MAIN C.B.A. (VEP61013A), FRONT PANEL C.B.A. (VEP60052A) & A-V TERMINAL C.B.A. (VEP60054A)

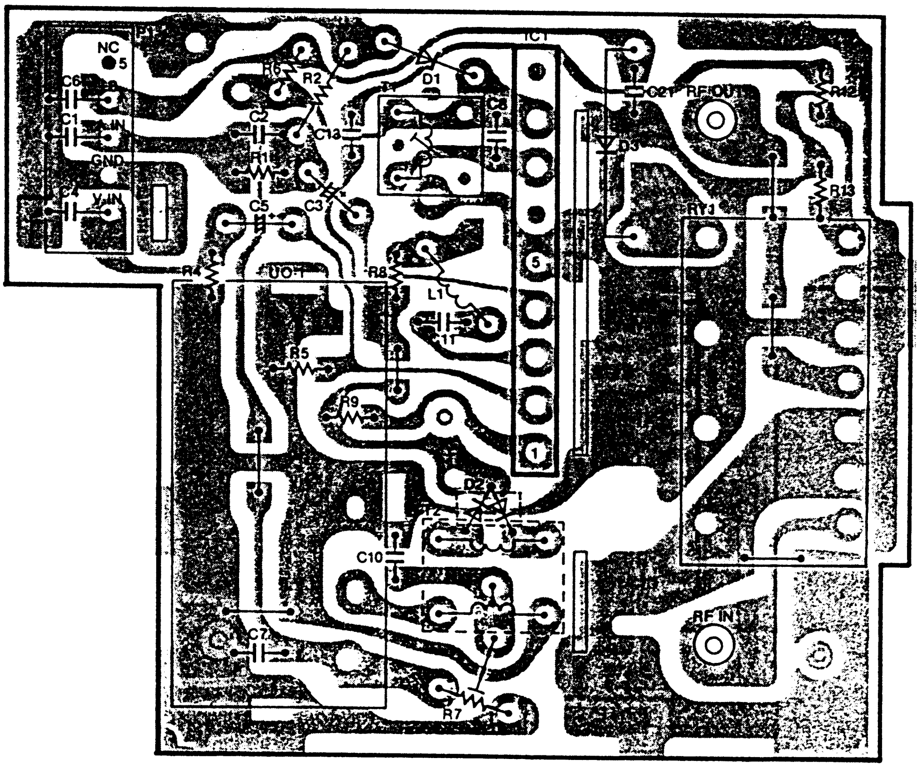

A-V TERMINAL C.B.A.
(VEP60054A)
VIDEO OUT
AUDIO OUT
C204
R201
R203
Q201
R202
R204
C202
C201
C203
P5
P4
R205
Q202
R206
R207
C206
C201
TO RF CONVERTER
P1
D301
D302
R302
R301
R303
SW301
SW302
D303
EXT
FRONT PANEL C.B.A. (VEP60052A)
MULTI CONNECTOR
OUTPUT VOLTAGE
MAIN C.B.A. (VEP61013A)
P1
P6
IC101
IC001
PHC001
Q101
Q102
Q103
Q001
VR101
VR102
VR103
CHARGE CURR.
CHARGE VOLTAGE
TP101
TH101
TH102
L101
L102
L103
L001
L002
L003
L004
T001
F001
ZNR 001
D001
C001
C002
C006
C007
C008
C009
C010
C011
C012
C013
C015
C016
C018
C117
R001
R002
R003
R004
R011
R012
R013
R015
R016
R101
R102
R103
R112
R114
R115
R122
R124
R125

— 9 —

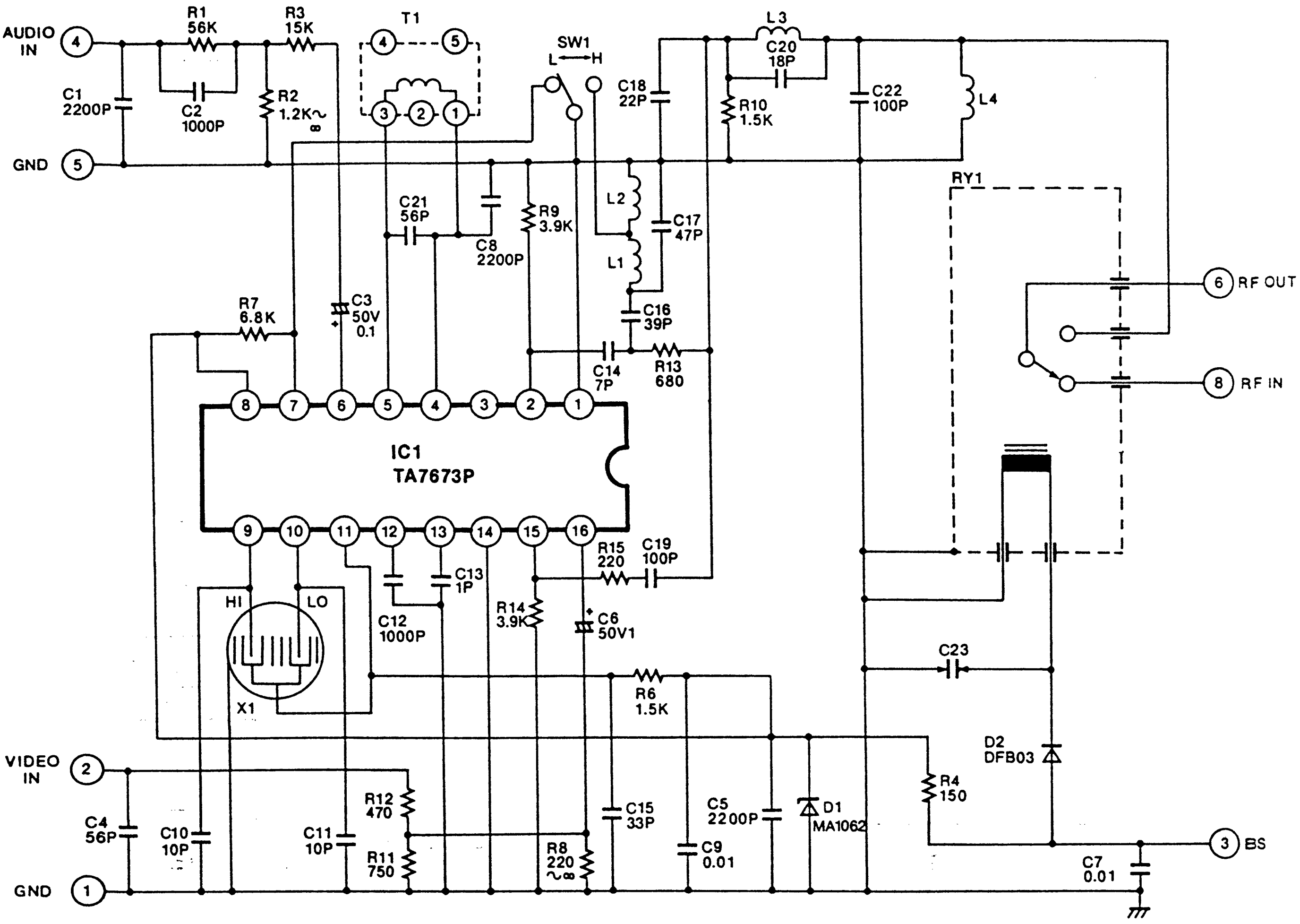
9. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7B/BA)


RF IN
RF OUT
RY1
D3
DFB03
C21
2200P
C24
R12
100
R13
100
IC1
LA7051
R9
3900
C13
5P
VIDEO
IN
C4
22P
C5
50V1
R4
1200
R5
1M
R8
2700
C11
9P
L1
82μ
D2
EICY474
AUDIO
IN
R1
82K
C3
50V1
T1
C1
1000P
C2
560P
R2
8200
R7
1KB
C10
22P
T2
GND
C14
1000P
C8
100P
N.C.
R14
8200
Q1
2SC
3130
L2
L3
B1
R6
120
C15
100P
L4
C16
2P
C18
15P
C19
3P
C20
VC
C6
1000P
D1
MA1075
C7
10n
R15
8200
R16
390
C17
2.5P

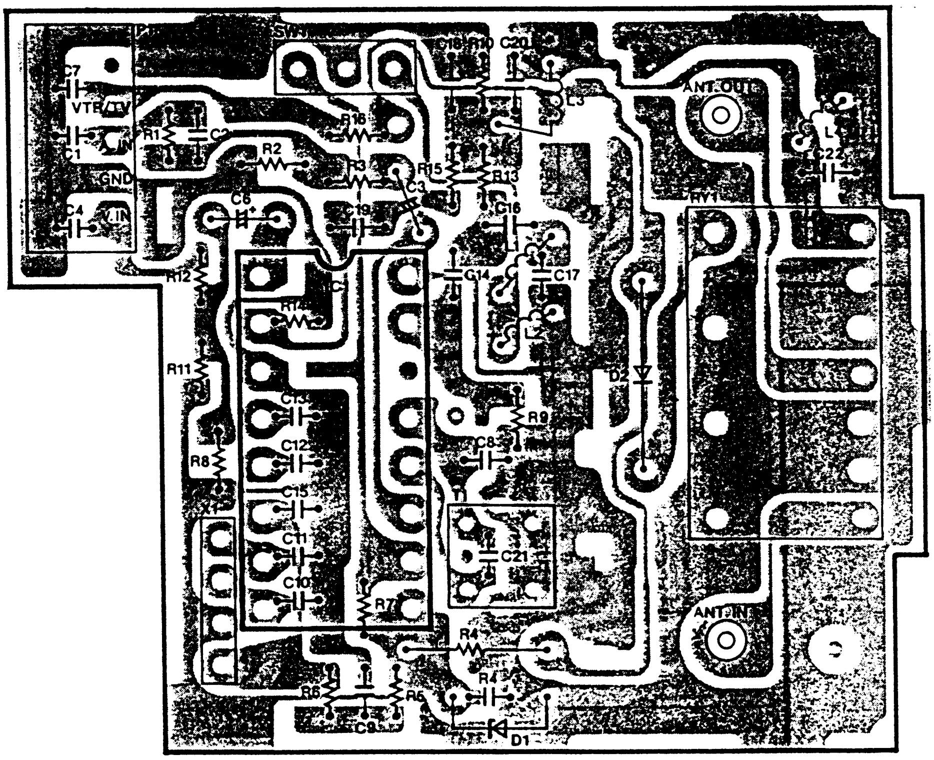
10. RF CONVERTER C.B.A. (ENC47957: VW-AM7B/BA)


NC
5
P1
C6
C1
GND
V.IN
R6
R2
D1
IC1
C21
RF OUT
R12
T1
C8
C2
C13
R1
D3
R13
C5
C3
RY1
R4
R8
L1
5
R5
R9
1
D2
C10
RF IN
C7
R7

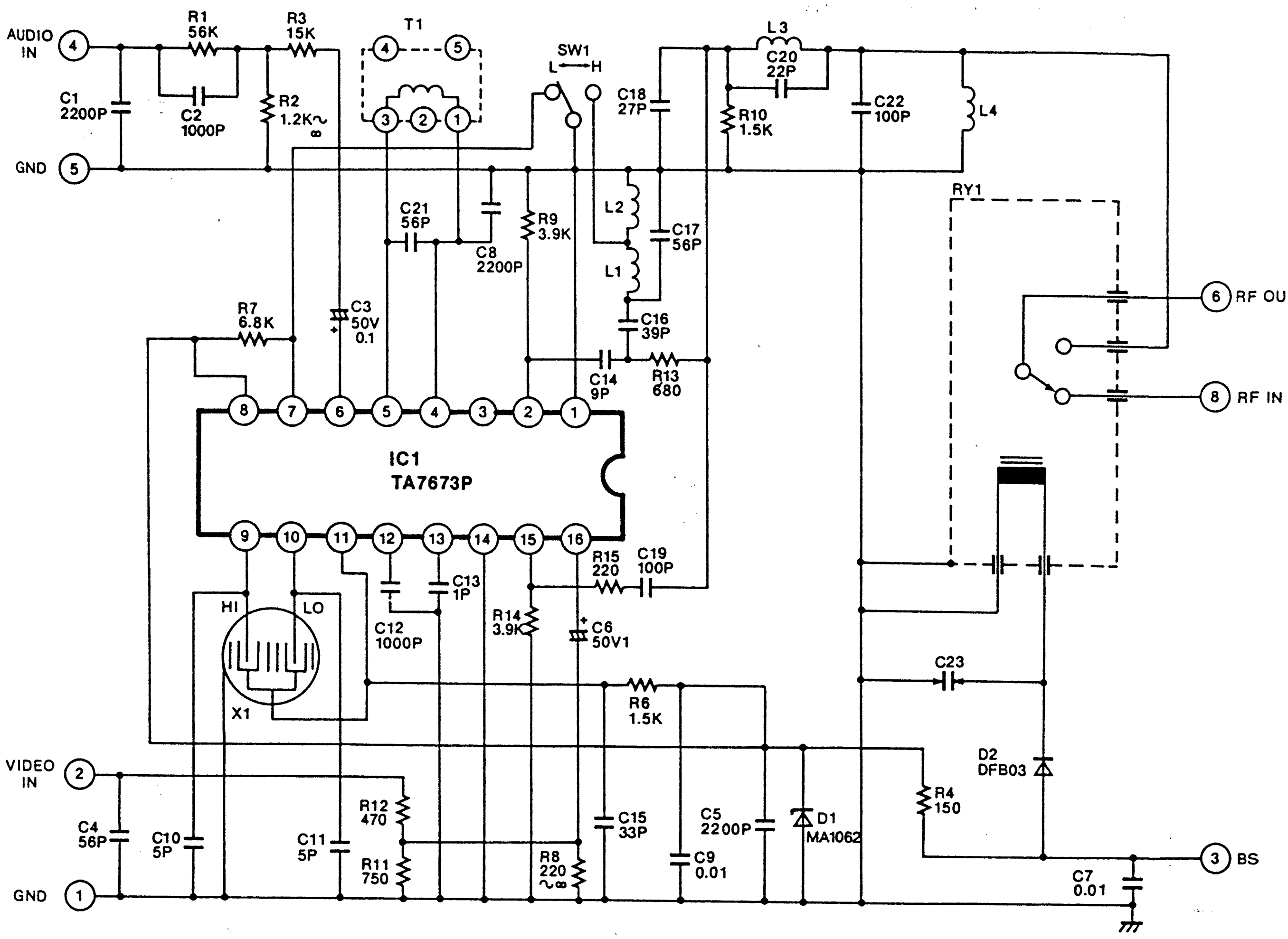
11. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7EA)


AUDIO IN 4
GND 5
VIDEO IN 2
GND 1
R1 56K
R3 15K
C1 2200P
C2 1000P
R2 1.2K
T1
4 5
3 2 1
SW1
L H
L3
C20 18P
C18 22P
R10 1.5K
C22 100P
L4
RY1
C21 56P
C8 2200P
R9 3.9K
L2
C17 47P
L1
C16 39P
R7 6.8K
C3 50V 0.1
C14 7P
R13 680
6 RF OUT
8 RF IN
IC1 TA7673P
R15 220
C19 100P
C12 1000P
C13 1P
R14 3.9K
C6 50V1
HI LO
X1
R6 1.5K
C23
D2 DFB03
C4 56P
C10 10P
C11 10P
R12 470
R11 750
R8 220
C15 33P
C5 2200P
C9 0.01
D1 MA1062
R4 150
3 BS
C7 0.01

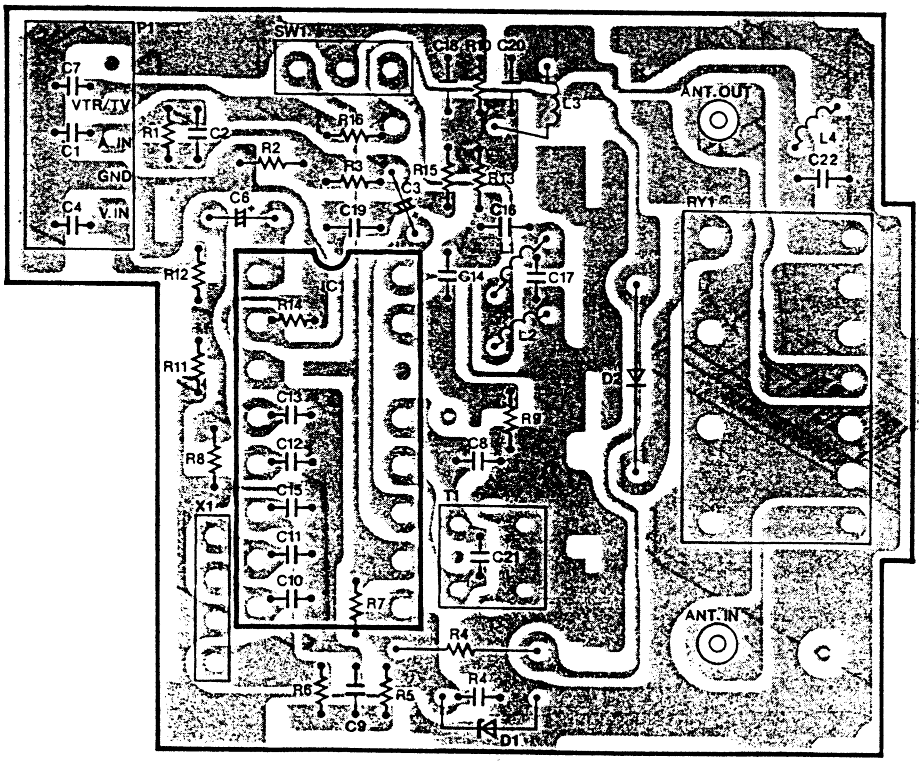
12. RF CONVERTER C.B.A. (ENC47901: VW-AM7EA)


SW1
C18
R10
C20
L3
ANT.OUT
L4
C22
RY1
C7
VTR/TV
R1
C2
C1
IN
R16
R2
R3
R15
R13
C3
GND
C4
V.IN
C6
C19
C16
C14
C17
R12
R14
L2
R11
C13
R9
D2
C12
C8
R8
C15
T1
C21
X1
C11
C10
R7
R4
ANT.IN
R6
R5
C9
D1

13. RF CONVERTER SCHEMATIC DIAGRAM (VW-AM7A)

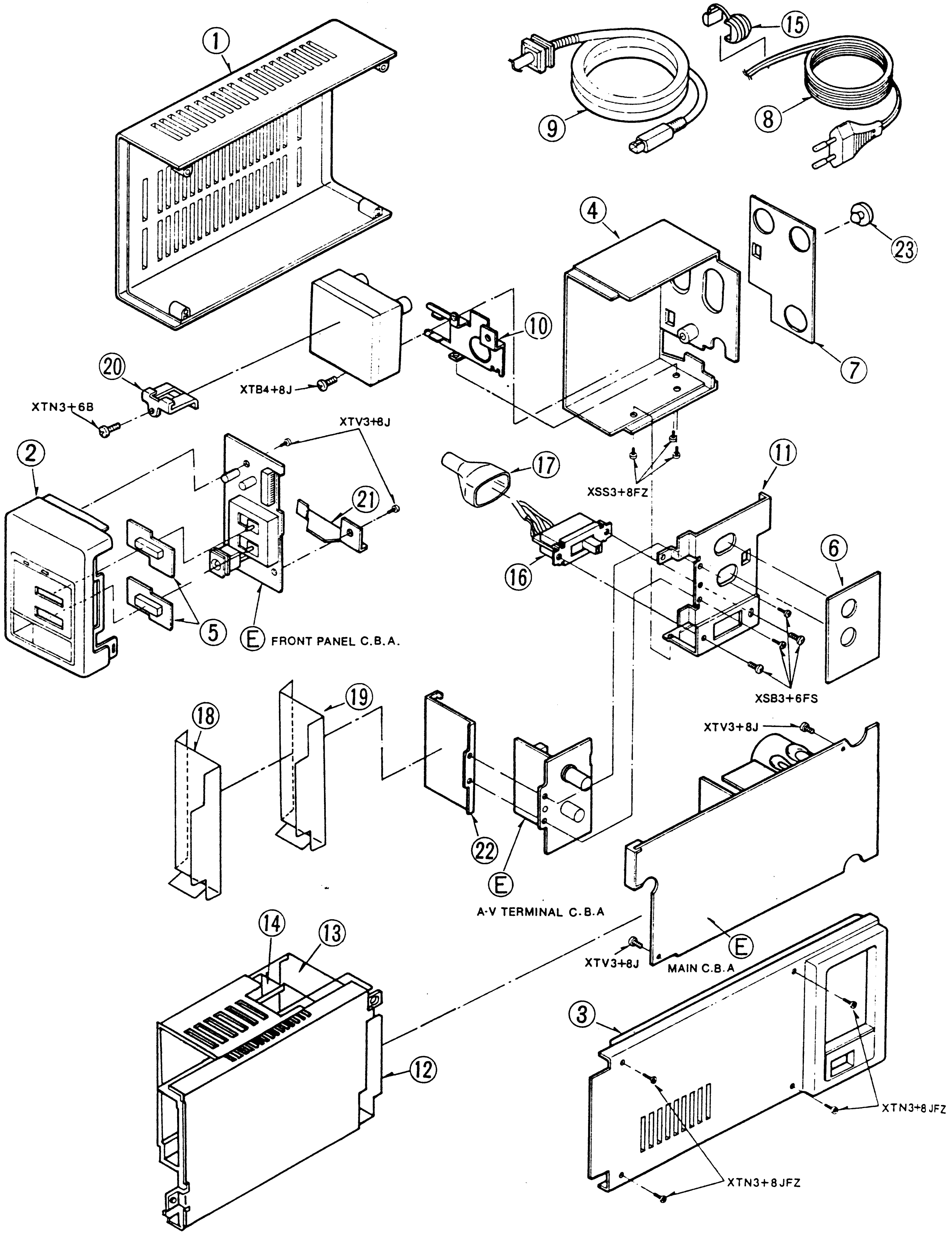

AUDIO IN ④
GND ⑤
R1 56K
R3 15K
T1
④ ⑤
③ ② ①
SW1
L H
L3
C20 22P
C18 27P
R10 1.5K
C22 100P
L4
C1 2200P
C2 1000P
R2 1.2K
RY1
C21 56P
C8 2200P
R9 3.9K
L2
L1
C17 56P
⑥ RF OUT
R7 6.8K
C3 50V 0.1
C16 39P
C14 9P
R13 680
⑧ RF IN
⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
IC1
TA7673P
⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯
R15 220
C19 100P
C13 1P
HI
LO
C12 1000P
R14 3.9K
C6 50V1
X1
C23
R6 1.5K
D2 DFB03
VIDEO IN ②
R12 470
R11 750
C15 33P
C5 2200P
D1 MA1062
R4 150
C4 56P
C10 5P
C11 5P
R8 220
C9 0.01
③ BS
C7 0.01
GND ①

14. RF CONVERTER C.B.A. (ENC47902: VW-AM7A)


P1
SW1
C18
R10
C20
C7
VTR/TV
C1
A.IN
GND
C4
V.IN
R1
C2
R16
R2
R3
R15
R13
C3
C6
C19
C16
ANT.OUT
L3
L4
C22
RY1
R12
IC1
C14
C17
R14
L2
D2
R11
C13
R9
C12
C8
R8
C15
T1
C21
C11
X1
C10
R7
R4
ANT.IN
R6
R5
C9
D1

15. EXPLODED VIEWS

❶ CHASSIS & FRAME SECTION


①
⑮
⑨
⑧
④
㉓
⑦
⑩
⑳
XTB4+8J
XTN3+6B
XTV3+8J
②
⑰
XSS3+8FZ
⑪
㉑
⑯
⑥
⑤
Ⓔ FRONT PANEL C.B.A.
XSB3+6FS
⑲
⑱
XTV3+8J
㉒
Ⓔ
A-V TERMINAL C.B.A
⑭
⑬
XTV3+8J
MAIN C.B.A
Ⓔ
③
⑫
XTN3+8JFZ
XTN3+8JFZ

REPLACEMENT PARTS LIST

Notes:

1. • Be sure to make your orders of replacement parts according to this list.
   • "⟨R⟩" in Remark column indicates recommended parts.
2. IMPORTANT SAFETY NOTICE
   Components identified by " ! " have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
   Meaning of symbol ! on this parts list is exactly the same as symbol ⚠ on Schematic and Circuit Board Diagrams.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), K=1,000Ω, M=1,000KΩ.
4. ITEM NUMBERS WITH CAPITAL LETTER E
   Item numbers with capital letter E (Example: E1, E2,...) in Ref. No. column mean that the parts are listed with the E item numbers in the exploded views.
5. The main assembled parts are shown below C.B.A. marked with "■".
6. When ordering parts, use part No. only from Part No. column.
7. Printed circuit board assembly with mark (NLA) is no longer available after discontinuation of the product.

1. MECHANICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
1(1)		VKM1112	TOP CASE	1	<R>
2(1)		VYP2011	FRONT PANEL UNIT	1	<R> AG-450E/B/A/EA/EG
2(1)		VYP2012	FRONT PANEL UNIT	1	<R> AG-450BA
3(1)		VKM1251	SIDE CASE	1	<R>
4(1)		VKM1111	REAR CASE	1	<R>
5(1)		VGU2144	OPERATE/TV SWITCH KNOB	2	<R>
6(1)		VGH0573	A-V TERMINAL NAME PLATE	1	
7(1)		VGH1410	REAR PANEL NAME PLATE	1	AG-450E/B/EG/BA
7(1)		VGH1412	REAR PANEL NAME PLATE	1	AG-450EA
7(1)		VGH1411	REAR PANEL NAME PLATE	1	AG-450A
8(1)		VJA0481	AC CORD	1	AG-450E/EG
8(1)		VJA0480	AC CORD	1	AG-450B/BA
8(1)		VJA0448	AC CORD	1	AG-450E/EA
9(1)		VJA0465	DC OUTPUT CORD	1	
10(1)		VMP1168	AC-DC CORD ANGLE	1	
11(1)		VMP1010	A-V TERMINAL ANGLE	1	
12(1)		VSC1669	MAIN SHIELD CASE	1	
13(1)		VMZ1126	INSULATION BARRIER (A)	1	
14(1)		VMZ1127	INSULATION BARRIER (B)	1	
15(1)		VJF0107	BUSHING	1	AG-450E/EG/A/EA
15(1)		VJF0206	BUSHING	1	AG-450B/BA
16(1)		ESD39317S	ALL OFF SWITCH	1	
17(1)		VMZ0580	SWITCH COVER	1	
18(1)		VMZ1128	REAR INSULATION PLATE (A)	1	
19(1)		VMZ1129	REAR INSULATION PLATE (B)	1	
20(1)		VMP1169	RF CONVERTER SUPPORT ANGLE	1	
21(1)		VMP0816	FRONT PANEL SUPPORT ANGLE	1	
22(1)		VMP0686	A-V TERMINAL SUPPORT ANGLE	1	
23(1)		VGF0163	RUBBER CAP	1	AG-450E/EG/B/BA

2. ELECTRICAL REPLACEMENT PARTS LIST

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
		VEP61013A	MAIN C.B.A	1	(NLA) <R>
		VEP60052A	FRONT PANNEL C.B.A.	1	(NLA) <R>
		VEP60054A	A-V TERMINAL C.B.A.	1	(NLA) <R>
		ENC47956	RF CONVERTER	1	AG-450E/EG
		ENC47957	RF CONVERTER	1	AG-450B/BA
		ENC47901	RF CONVERTER	1	AG-450EA
		ENC47902	RF CONVERTER	1	AG-450A
	■	VEP61013A	MAIN C.B.A		
			CAPACITORS		
C001		ECQU2A224MN	P.CAPACITOR 100V 0.22U	1	
C002		ECQU2A473MN	P.CAPACITOR 250V 0.047U	1	
C006-09		VCK0046	C.CAPACITOR 1000P	4	
C010		ECES2GG820K	E.CAPACITOR 400V 82U	1	
C011		ECQE2104KF	P.CAPACITOR 0.1U	1	
C012		ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C013		ECEA1VGE220	E.CAPACITOR 35V 22U	1	
C014		ECEA1CGE330	E.CAPACITOR 16V 33U	1	
C015		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C016		VCK0062	C.CAPACITOR	1	
C018		ECKD3A101KB	C.CAPACITOR 1KV 100U	1	
C101		ECEA1EF102	E.CAPACITOR 25V 1000U	1	
C102		ECEA1EGE471	E.CAPACITOR 25V 470U	1	
C103		ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C104		ECEA1VGE100	E.CAPACITOR 35V 10U	1	
C105		ECEA1HU010	E.CAPACITOR 50V 1U	1	
C106		ECEA1EU100	E.CAPACITOR 25V 10U	1	
C107		ECEA1EN4R7SB	E.CAPACITOR 25V 4.7U	1	
C108,09		ECEA1EGE470	E.CAPACITOR 25V 47U	2	
C110		ECEA1CM102U	E.CAPACITOR 16V 1000U	1	
C111		ECEA1CU330	E.CAPACITOR 16V 33U	1	
C112		ECQV1H224JZ	P.CAPACITOR 50V 0.22U	1	
C113		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C114		ECEA1EGE221	E.CAPACITOR 25V 220U	1	
C115		ECQV1H104JZ	P.CAPACITOR 50V 0.1U	1	
C116		ECEA1EGE100	E.CAPACITOR 25V 10U	1	
C117		ECKD2H221KB	C.CAPACITOR 500V 220U	1	
D001		S1WBA60S	DIODE	1	<R>
D002		ERA22-08	DIODE	1	<R>
D003		ERA82-004	DIODE	1	<R>
D004		MA165	DIODE	1	<R>
D005		VSD0001	DIODE	1	<R>
D006		RMPG06GPKG3	DIODE	1	<R>
D007		MA4270H	DIODE	1	<R>
D008		ERA82-004	DIODE	1	<R>
D101		FML12S	DIODE	1	<R>
D102		RMPG06GPKG3	DIODE	1	<R>
D103		SB340-5013L	DIODE	1	<R>
D107		RD8.2JS	DIODE	1	<R>
D108		OA95A	DIODE	1	<R>
D109,10		MA165	DIODE	2	<R>
D111		OA95A	DIODE	1	<R>
D112		MA4056M	DIODE	1	<R>
D113		MA165	DIODE	1	<R>
D114		MA4100L	DIODE	1	<R>

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
F001		XBA2C10TB0	FUSE	1	<!><R>
IC1		VCR0189	IC	1	<R>
IC101		VCR0190	IC	1	<R>
IC102		UPC78M12H	IC	1	<R>
L001		VLF0615	COIL	1	
L002		VLF0616	COIL	1	
L3.L4		VLP0067	COIL	2	
L101		VLQ0098	COIL	1	
L102		VLQEL06F470K	COIL 47UH	1	
L103		VLP0064	COIL	1	
L103		VLP0067	COIL	1	
P6		VJP1143	CONNECTOR(MALE)	1	
PHC1		PC111A	PHOTO COUPLER	1	
Q001		2SK954	TRANSISTOR	1	<R>
Q101		2SB953P	TRANSISTOR	1	<R>
Q102		2SD638	TRANSISTOR	1	<R>
Q103		2SD636	TRANSISTOR	1	<R>
			RESISTORS		
R001-04		ERDS2TJ114	C.RESISTOR 1/4W 110K	4	
R005		ERG2SJ104	M.RESISTOR 2W 100K	1	
R006		ERX1SJR27	M.RESISTOR 1W 0.27	1	
R007		ERDS2TJ271	C.RESISTOR 1/4W 270	1	
R008		ERDS2TJ680	C.RESISTOR 1/4W 68	1	
R009		ERDS2TJ563	C.RESISTOR 1/4W 56K	1	
R010		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R011		ERDS2TJ562	C.RESISTOR 1/4W 5.6K	1	
R012		ERDS2TJ101	C.RESISTOR 1/4W 100	1	
R013		ERC12GJ334	S.RESISTOR 1/2W 330K	1	
R015		ERDS2TJ120	C.RESISTOR 1/4W 12	1	
R016		ERDS2TJ220	C.RESISTOR 1/4W 22	1	
R101		ERF2AKR22	W.RESISTOR 2W 0.22	1	
R102		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R103		ERG2ANJ221	M.RESISTOR 2W 220	1	
R105-08		ERX1SJU1R0	M.RESISTOR 1W 1	4	
R109		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R110		ERDS2TJ104	C.RESISTOR 1/4W 100K	1	
R111		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R112		ERDS2TJ105	C.RESISTOR 1/4W 1000K	1	
R113		ERDS2TJ272	C.RESISTOR 1/4W 2.7K	1	
R114		ERDS2TJ223	C.RESISTOR 1/4W 22K	1	
R115		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R116		ERDS2TJ822	C.RESISTOR 1/4W 8.2K	1	
R117		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R118		ERDS2TJ682	C.RESISTOR 1/4W 6.8K	1	
R119		ERDS2TJ821	C.RESISTOR 1/4W 820	1	
R120		ERDS2TJ682	C.RESISTOR 1/4W 6.8K	1	
R121		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R122		ERDS2TJ183	C.RESISTOR 1/4W 18K	1	
R123		ERDS2TJ271	C.RESISTOR 1/4W 270	1	
R124		ERDS2TJ681	C.RESISTOR 1/4W 680	1	
R125		ERG3SJ561	M.RESISTOR 3W 560	1	
R126		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R128		ERDS2TJ103	C.RESISTOR 1/4W 10K	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
T001		VLT0523	TRANSFORMER	1	<R>
TH101		ERTD2ZHL332S	THERMISTOR 3.3K	1	
TH102		ERTD2ZIL154S	THERMISTOR 150K	1	
TH103		ERTD2ZHL153S	THERMISTOR 15K	1	
VR101		EVN3ACA00B53	V.RESISTOR 5K	1	
VR102		EVN3ACA00B24	V.RESISTOR 20K	1	
VR103		EVN3ACA00B53	V.RESISTOR 5K	1	
ZNR1		ENB461D-05A	SURGE ABSORBER 460V	1	<R>
			MISELLANEOUS		
		TJC6320	FUSE HOLDER	2	<!><R>
		VMZ0429	FUSE COVER	1	<!><R>
		VMZ0913	FUSE COVER	4	<!><R>
		VMZ0997	TUBE FOR AC CORD	1	<!><R>
		VMZ1104	INSULATING SHEET	1	<!><R>
		VSC2215	HEAT SINK (A)	1	
		VSC2216	HEAT SINK (B)	1	
		VSC2227	HEAT SINK (C)	1	
	■	VEP60052A	FRONT PANNEL C.B.A		
D301,02		LN21RCPHLM	LED	2	<R>
D303		D3S4M	DIODE	1	<R>
R301		ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R302		ERDS2TJ122	C.RESISTOR 1/4W 1.2K	1	
R303		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
SW301,02		ESD27170	SWITCH	2	<R>
			MISELLANEOUS		
		KL04	LED SPACER	1	
		VJJ0128	EXT BATTERY TERMINAL	1	
	■	VEP60054A	A-V TERMINAL C.B.A		
			CAPACITORS		
C201		ECEA0JK470	E.CAPACITOR 6.3V 47U	1	
C202		ECKF1H561KB	C.CAPACITOR 50V 560P	1	
C203		ECEA0JU102	E.CAPACITOR 6.3V 1000U	1	
C204		ECEA1CSS221	E.CAPACITOR 16V 220U	1	
C206		ECEA0JU470	E.CAPACITOR 6.3V 47U	1	
L201		VLF0413	FILTER	1	

Ref.No.		Part No.	Part Name & Description	Pcs	Remarks
Q201		2SB641	TRANSISTOR	1	<R>
Q202		2SC2206	TRANSISTOR	1	<R>
R201		ERDS2TJ333	C.RESISTOR 1/4W 33K	1	
R202		ERDS2TJ123	C.RESISTOR 1/4W 12K	1	
R203		ERDS2TJ561	C.RESISTOR 1/4W 560	1	
R204		ERDS2TJ680	C.RESISTOR 1/4W 68	1	
R205		ERDS2TJ102	C.RESISTOR 1/4W 1K	1	